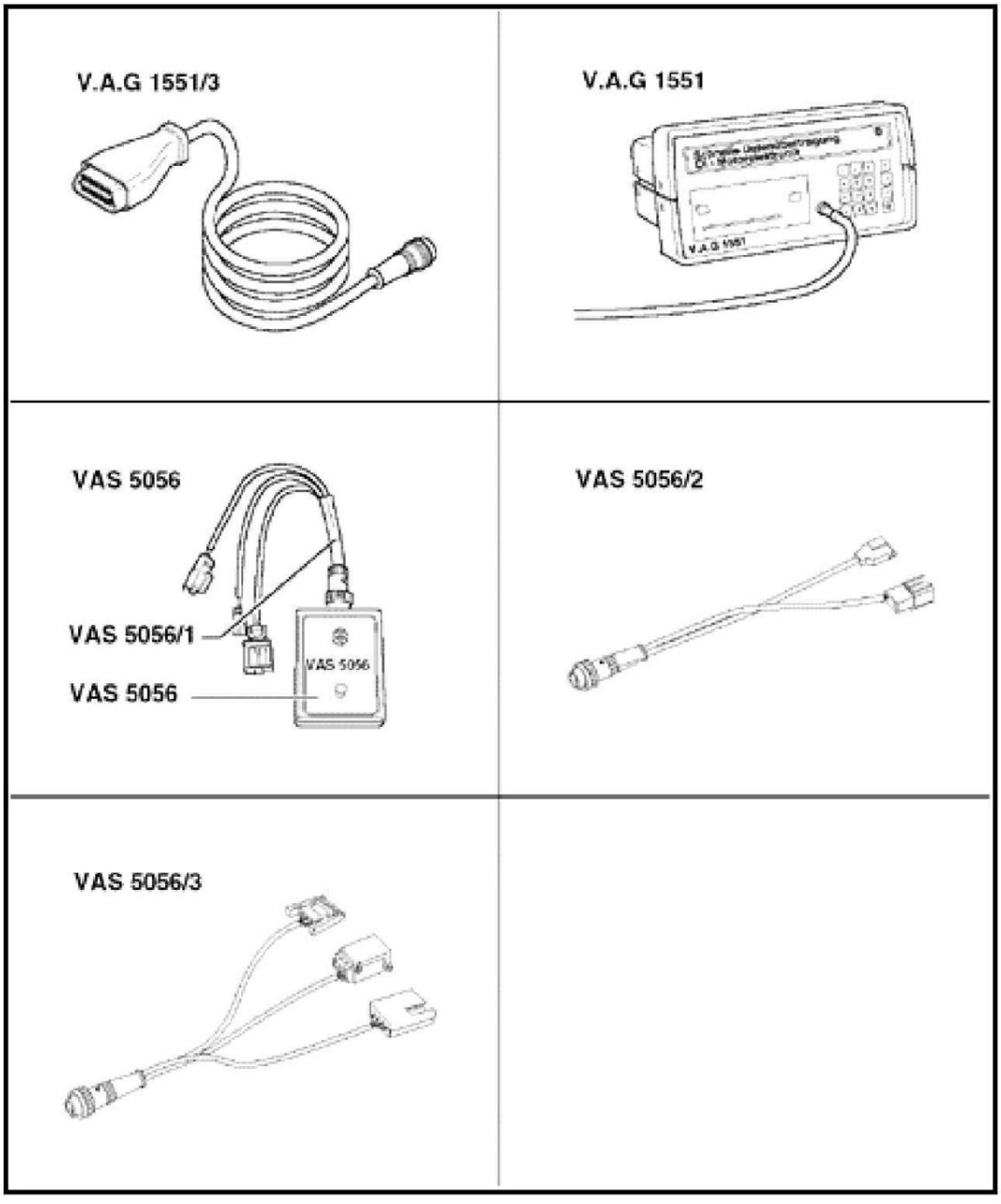
ON BOARD DIAGNOSIS (OBD)

TOOLS

Special tools, workshop equipment, testers, measuring instruments and auxiliary items required

- V.A.G 1551 /3B Cable
- V.A.G 1551 Scan tool
- VAS 5056 Test box
- VAS 5056/2 Adapter cable
- VAS 5056/3 Adapter cable



G03258801

Fig. 1: Identifying Special Tools, Workshop Equipment, Testers, Measuring Instruments And Auxiliary Items
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- VAS 5051 Vehicle Diagnosis, Testing and Information System

Some functions which could previously be performed with V.A.G 1551/1552 must be performed with the VAS

5051 in the operating mode vehicle self-diagnosis: Operating instructions for Vehicle Diagnosis, Testing and Information System VAS 5051.

SCAN TOOL, CONNECTING

Check prerequisites:

- All fuses according to current flow diagram OK.
- Battery voltage at least 9 V.
- Connect scan tool V.A.G 1551 with cable V.A.G 1551/3.

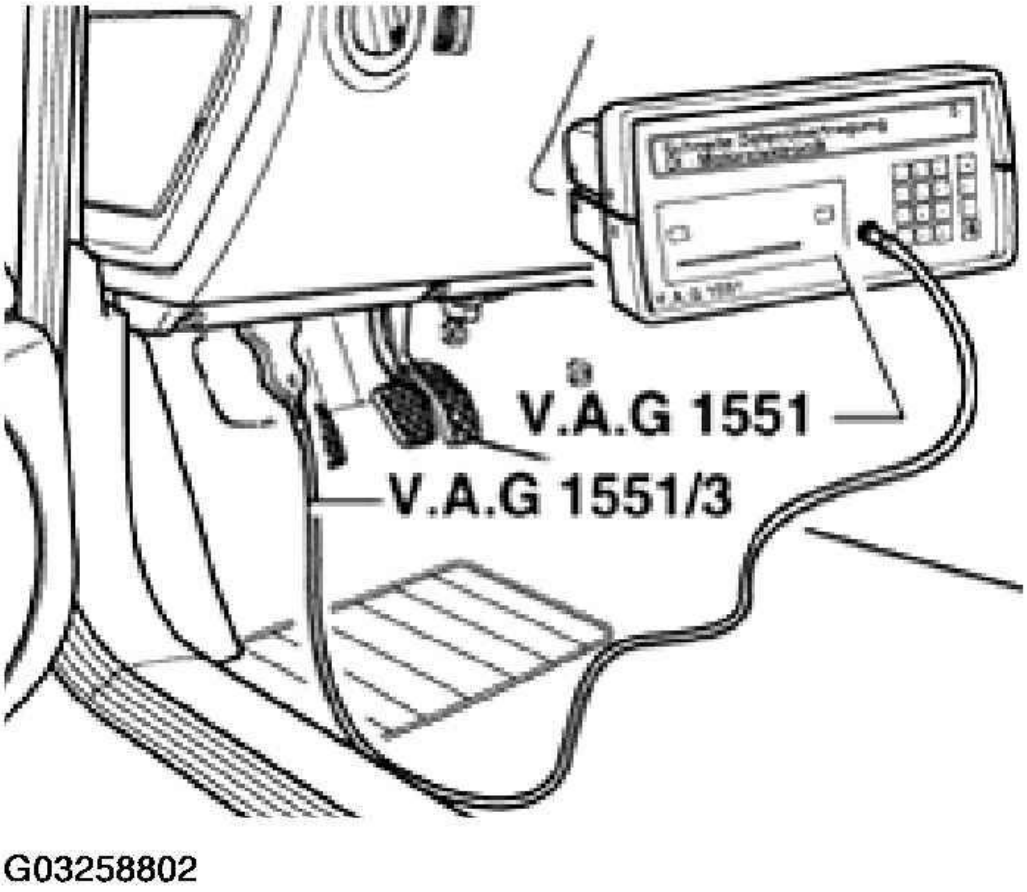


Fig. 2: Connecting Scan Tool V.A.G 1551 With Cable V.A.G 1551/3
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Display will show the actual software version installed (will be shown briefly in display)

Fig. 3: Identifying Scan Tool Display (1 Of 3)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

* Appears alternately

- Press button -1- for "Rapid data transfer" mode and the following is indicated on display:

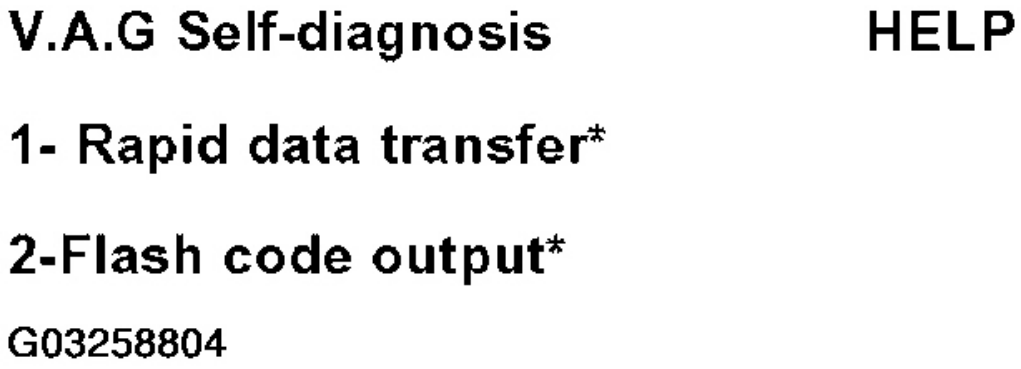


Fig. 4: Identifying Scan Tool Display (2 Of 3)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

NOTE:

- **If the display remains blank, check V.A.G 1551 voltage supply according to wiring diagram.**

See Electrical Wiring Diagrams, Troubleshooting and Component Locations

- **Additional operating information can be printed out depending on the program by pressing the HELP button of V.A.G 1551.**
- **The --> button serves to advance the program sequence.**
- **The PRINT button is used for switching on the printer (warning lamp in button lights up).**

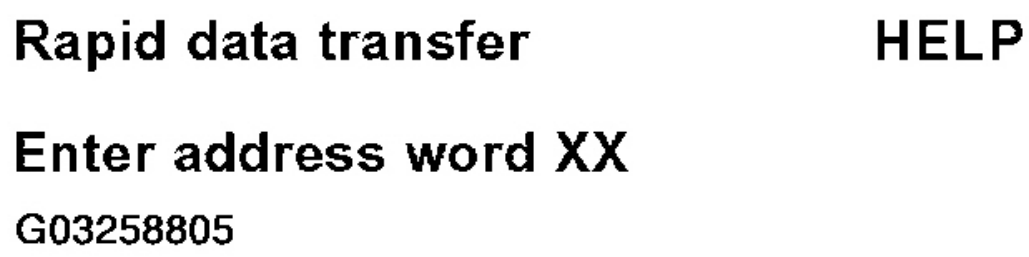


Fig. 5: Identifying Scan Tool Display (3 Of 3)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

With the address word 00 the automatic test sequence is carried out, i.e. the DTC memories of all systems in the vehicle capable of self-diagnosis are checked via the rapid data transfer.

The rear spoiler system with the address word 54 is not part of this automatic test sequence. It must be checked separately, if necessary, see **REAR SPOILER, ON BOARD DIAGNOSIS (OBD)** .

COMFORT SYSTEM (VEHICLES WITH POWER WINDOWS), ON BOARD DIAGNOSIS (OBD)

FUNCTIONAL DESCRIPTION

The vehicle has as far as the On Board Diagnosis (OBD) is concerned has a Comfort System (vehicles with power windows) (not central locking system) when the vehicle is equipped with electric windows, with door control units, and central locking.

The central locking system works using the electric motor principle.

The locking units (door locks) located in the doors are equipped with electric motors.

After receiving a "lock" command from an external source (door lock, radio wave remote control) the doors are

locked, the anti-theft system is activated and the windows and sliding/tilting sunroof are closed. The feedback message for the relevant control unit is via the contact switch in the lock unit.

The electrical Comfort System (vehicles with power windows) can operate all the known convenience functions i.e. control of interior lights, anti-theft alarm with interior monitoring, electric windows and mirrors as well as radio wave remote control provided the vehicle is equipped with these functions.

If an airbag is triggered this automatically sends a signal to the Comfort System (vehicles with power windows) which unlocks the doors and switches on the interior lights.

The Central control module for comfort system -J393- is located under the instrument panel and is secured to the steering column by a bracket. It is equipped with a fault memory. The On Board Diagnosis (OBD) connection is located beneath the cover under the steering wheel.

The control unit recognizes faults and malfunctions in the central locking Comfort System (vehicles with power windows) (Comfort System (vehicles with power windows) includes central locking, anti-theft alarm, electric windows, radio wave remote control, mirror) and stores them in a non-volatile memory.

To commence fault finding, initiate On Board Diagnosis (OBD) and retrieve the stored information with the Vehicle Diagnosis, Testing and Information System VAS 5051 or the scan tool V.A.G 1551/1552).

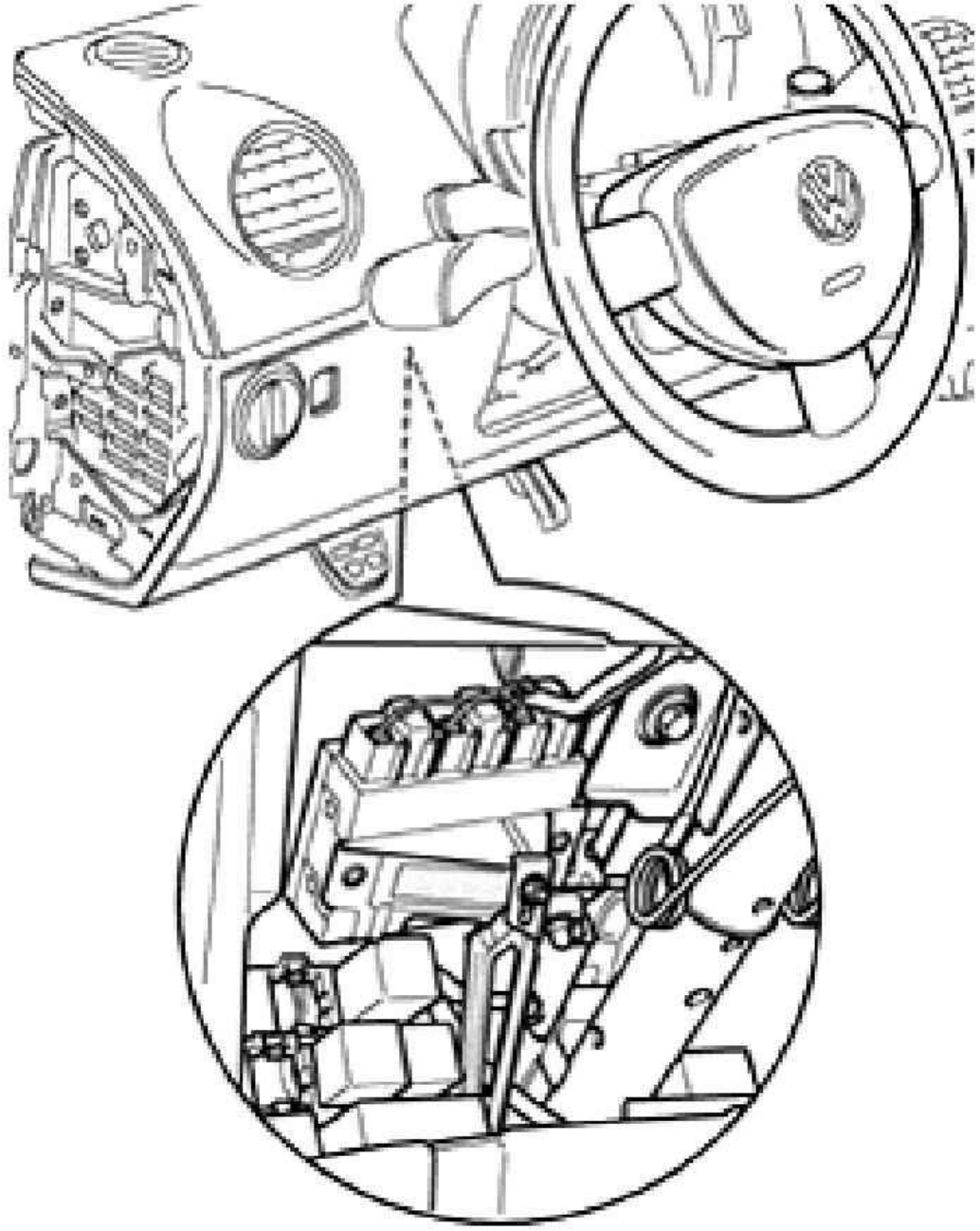


Fig. 6: Locating Central Control Module For Comfort System J393
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Some functions which could previously be performed with V.A.G 1551/1552 must now be performed with the Vehicle Diagnosis, Testing and Information System VAS 5051 in the operating mode vehicle On Board Diagnosis (OBD): See Operating instructions for Vehicle Diagnosis, Testing and Information System VAS 5051.

The malfunction information displayed is used to refer to the Diagnostic Trouble Code (DTC) table with notes on the possible causes for directed repair measures.

Malfunctions which can be attributed to a temporary open circuit in the wiring or a loose contact (terminal), will also be stored. These malfunctions will be displayed as sporadic malfunctions "SP".

Determining the items which have possibly triggered the anti-theft alarm system

The breakdown of the display content illustrated on **BREAK DOWN OF DISPLAY CONTENT FOR DISPLAY GROUP NUMBER 015** for the display group number 15 gives information as to which component triggered the alarm system last, and can therefore help the fault finding/repair.

This "malfunction memory" cannot be erased.

Only statistical malfunctions are considered:

- Central locking inoperative
- Mirror positioning motor inoperative
- Window regulator positioning motor inoperative
- CAN communication inoperative

NOTE: Before changing a component erase fault memory, perform functional checks and Check DTC memory again.

SYSTEM ACTIVE INDICATOR

The optical functional display for the central locking is an LED in the drivers door upper trim section. The LED flashes for 28 days after locking the door and goes out if the doors are not unlocked within this period.

The function of the anti-theft alarm system (ATA) is not distinctly indicated.

ANTI-THEFT ALARM SYSTEM, DETERMINING THE ITEMS WHICH CAUSED ALARM TO TRIGGER

The breakdown of the display content illustrated, see **BREAK DOWN OF DISPLAY CONTENT FOR DISPLAY GROUP NUMBER 015** for the display group number 15 gives information as to which component triggered the alarm system last, and can therefore help the fault finding/repair.

This "malfunction memory" cannot be erased.

INTERIOR MONITORING SYSTEM, DESCRIPTION

The interior monitoring system is a component part of the anti-theft alarm system. The system is comprised of two sensors which are installed in place of the rear reading lights. The reading light function is integrated in the component and operating the light is separate function on each of the two sensors.

The monitoring of the interior works on the ultrasonic principle. If the armed system detects movement in the vehicle then an alarm is raised via the anti-theft alarm system (ATA).

The interior monitoring sensors can be switched off via a button in the B pillar/door sill and using the adaption function (function 10, channel number 05). To do this the ignition key must be removed from the ignition lock after switching off the ignition then press the button and lock the vehicle.

When the vehicle is next unlocked the sensors are reactivated

For technical reasons one must wait at least 30 seconds when the vehicle is locked for all test possibilities.

ON BOARD DIAGNOSIS (OBD) FOR THE COMFORT SYSTEM (VEHICLES WITH POWER WINDOWS), INITIATING

Test prerequisites:

- Voltage supply and fuses for the respective system OK.
- To initiate the On Board Diagnosis (OBD) the ignition must be switched on "Terminal 15 on".

NOTE:

- **If the display remains blank, check V.A.G 1551 voltage supply according to electrical wiring diagram.**

  See Electrical Wiring Diagrams, Troubleshooting & Component Locations

- **Additional operating information can be printed out depending on the program by pressing the HELP button of V.A.G 1551 or VAS 5051.**
- **The --> button serves to advance the program sequence.**
- **The PRINT button of V.A.G 1551 is used for switching on the printer (warning lamp in button lights up). Print via the print menu when using VAS 5051, if necesssary.**

OBD for the Comfort System (vehicles with power windows)

- Connecting V.A.G 1551 or VAS 5051, see **SCAN TOOL, CONNECTING** .
- Switch on ignition.
- Press button -1- for "Rapid data transfer" mode.
- Switch on printer with Print button (warning la in button lights up) if using V.A.G 1551 or print via the print menu when using VAS 5051, if necesssary.

Indicated on display: see **Fig. 7** .

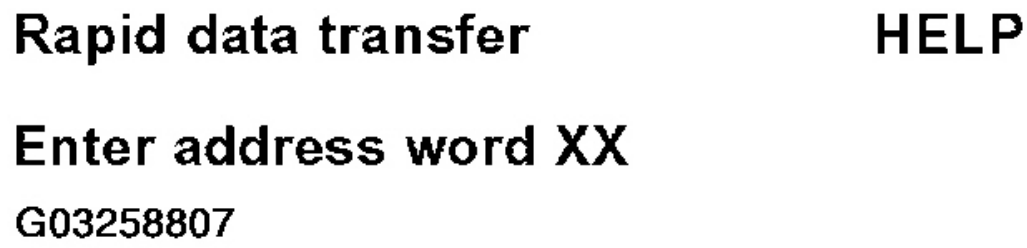


Fig. 7: Scan Tool Display - OBD For Comfort System (1 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press buttons -4- and -6-.

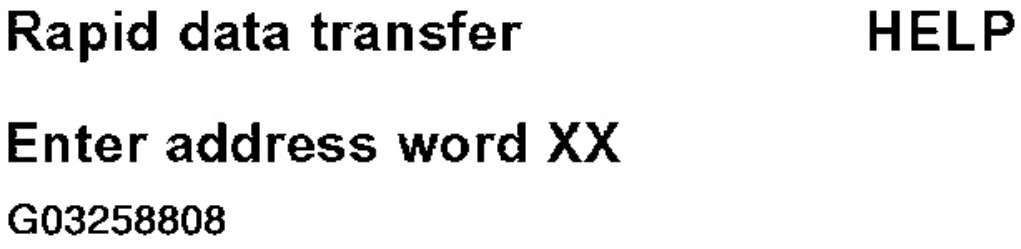


Fig. 8: Scan Tool Display - OBD For Comfort System (2 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display after entering the address 46: see **Fig. 9** .

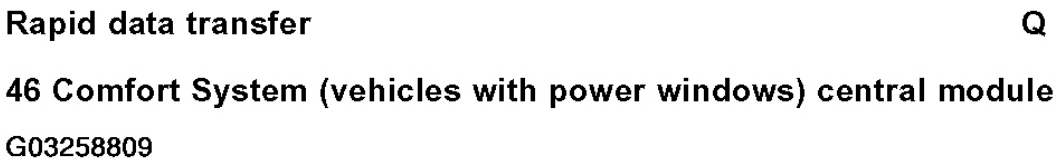


Fig. 9: Scan Tool Display - OBD For Comfort System (3 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

And the following is indicated on display: see **Fig. 10** .

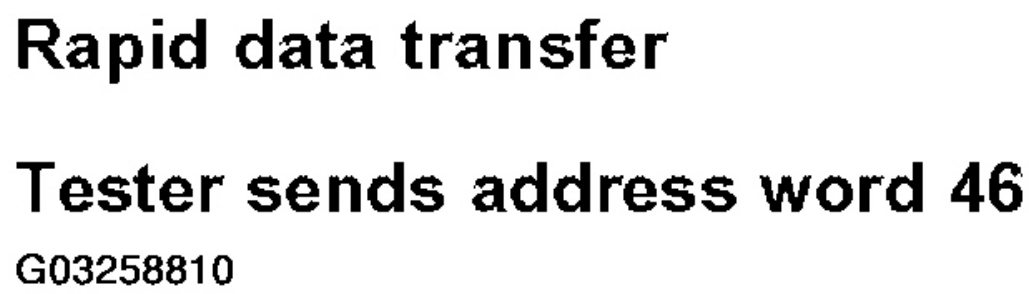


Fig. 10: Scan Tool Display - OBD For Comfort System (4 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Scan tool V.A.G 1551 displays the control module identification for the central control unit (Central CU, for example): see **Fig. 11** .

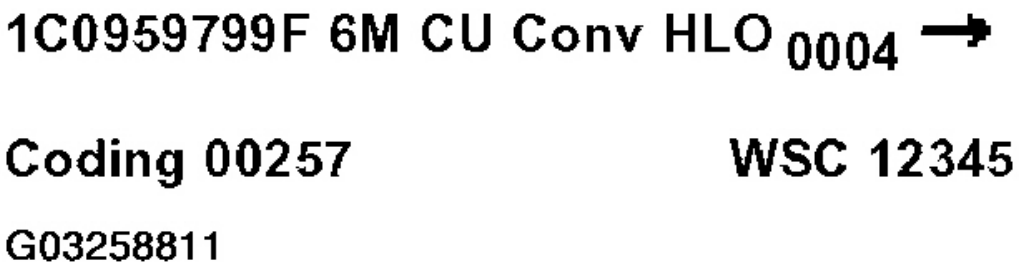


Fig. 11: Scan Tool Display - OBD For Comfort System (5 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

At this point the program can be advanced with -C- button to the option "Rapid data transfer, see function".

- Press --> button.

Will appear briefly in display: see **Fig. 12** .

Fig. 12: Scan Tool Display - OBD For Comfort System (6 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

and the following is indicated on display:

The control module identification for the drivers door control unit is displayed, for example: see **Fig. 13** .

Fig. 13: Scan Tool Display - OBD For Comfort System (7 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press --> button

Will appear briefly in display: see **Fig. 14** .

Fig. 14: Scan Tool Display - OBD For Comfort System (8 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

and the following is indicated on display:

The control unit identification for the front passengers door control module is displayed. For example, see **Fig. 15** .

Fig. 15: Scan Tool Display - OBD For Comfort System (9 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press --> button

Will appear briefly in display: see **Fig. 16** .

Fig. 16: Scan Tool Display - OBD For Comfort System (10 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The control unit identification for the left rear door control module (in side part) is displayed, for example (see **Fig. 17**).

Fig. 17: Scan Tool Display - OBD For Comfort System (11 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press --> key

Will appear briefly in display: see **Fig. 18** .

Fig. 18: Scan Tool Display - OBD For Comfort System (12 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The control unit identification for the right rear door control module (in side part) is displayed, for example (see **Fig. 19**).

Fig. 19: Scan Tool Display - OBD For Comfort System (13 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press --> button

Indicated on display: see **Fig. 20** .

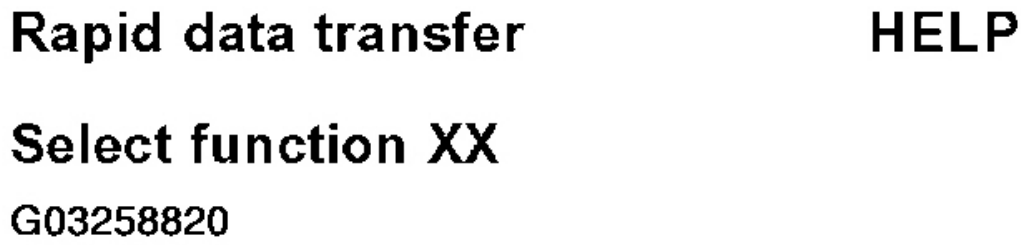


Fig. 20: Scan Tool Display - OBD For Comfort System (14 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

LIST OF SELECTABLE FUNCTIONS

01 - Checking control unit version, see **CONTROL UNIT VERSION, CHECKING (FUNCTION 01)**

02 - Check DTC memory, see **DTC MEMORY, CHECKING (FUNCTION 02)**

03 - Output Diagnostic Test Mode (DTM), see **OUTPUT DIAGNOSTIC TEST MODE (DTM) (FUNCTION 03)**

05 - Erasing fault memory, see **DTC MEMORY, ERASING (FUNCTION 05)**

06 - Ending output, see **END OUTPUT (FUNCTION 06)**

07 - Code control unit, see **COMFORT SYSTEM (VEHICLES WITH POWER WINDOWS) CONTROL UNIT, CODING (FUNCTION 07)**

08 - Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)**

10 - Adaptation, see **RADIO FREQUENCY REMOTE CONTROL, PROGRAMMING IGNITION KEYS, MATCHING (ADAPTATION)**

NOTE:

- **A list of possible functions is printed out after pressing the HELP button.**
- **Do not select further functions, which can be printed out after pressing the HELP button.**
- **After the functions have been completed the V.A.G 1551 returns to the following start position:**

Indicated on display: see **Fig. 21** .

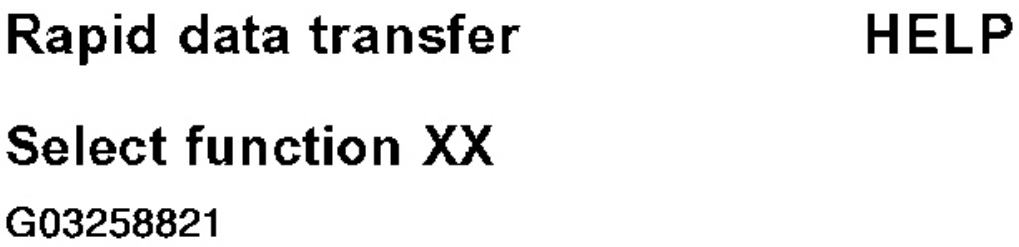


Fig. 21: Scan Tool Display
Courtesy of VOLKSWAGEN OF AMERICA, INC.

CONTROL UNIT VERSION, CHECKING (FUNCTION 01)

- Connecting V.A.G 1551 or VAS 5051, see **SCAN TOOL, CONNECTING** . Initiating On Board Diagnosis (OBD), see **ON BOARD DIAGNOSIS (OBD) FOR THE COMFORT SYSTEM (VEHICLES WITH POWER WINDOWS), INITIATING** .

Indicated on display: see **Fig. 22** .

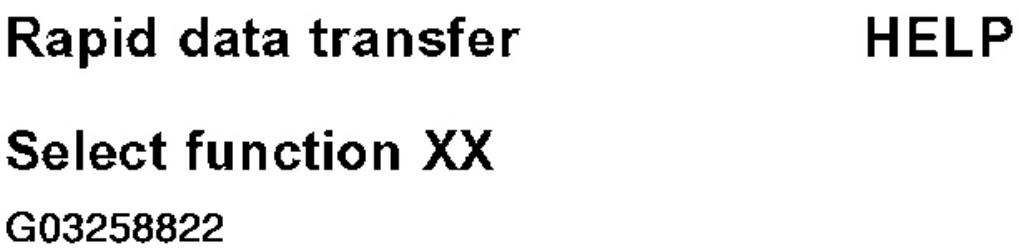


Fig. 22: Scan Tool Display - Function 01 (1 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -1-.

Indicated on display:

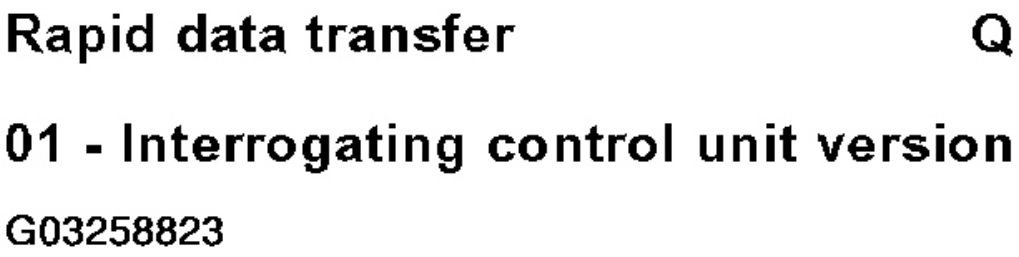


Fig. 23: Scan Tool Display - Function 01 (2 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Scan tool V.A.G 1551 displays the control unit identification for the central control unit (Central CU, for example: see **Fig. 24**).

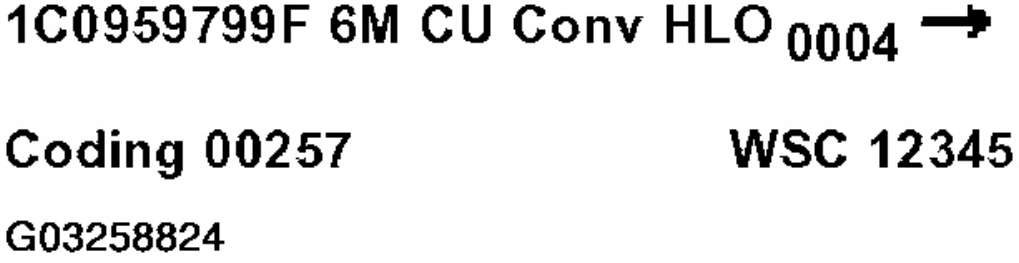


Fig. 24: Scan Tool Display - Function 01 (3 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Breakdown of the display:

- 1C0959799F = Part No. of the control unit (for latest control unit version see parts catalog)
- 6M CU Conv HLO = System designation
- 0004 = Software version
- Coding 00257 = Coding variants
- WSC 12345 = Workshop code (Will be automatically stored in the control unit when entering the

system.)

- Press --> button

Will appear briefly in display:

Fig. 25: Scan Tool Display - Function 01 (4 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

and the following is indicated on display:

Fig. 26: Scan Tool Display - Function 01 (5 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The control unit identification for the drivers door control unit is displayed, for example (**Fig. 26**).

- Press --> button

Will appear briefly in display:

Fig. 27: Scan Tool Display - Function 01 (6 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

and the following is indicated on display:

Fig. 28: Scan Tool Display - Function 01 (7 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The control unit identification for the front passengers door control unit is displayed, for example (**Fig. 28**).

- Press --> button.

Will appear briefly in display:

Fig. 29: Scan Tool Display - Function 01 (8 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

and the following is indicated on display:

Fig. 30: Scan Tool Display - Function 01 (9 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The control unit identification for the rear left door control unit (in side part) is displayed, e.g.:

- Press --> button.

Will appear briefly in display:

Fig. 31: Scan Tool Display - Function 01 (10 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

and the following is indicated on display:

Fig. 32: Scan Tool Display - Function 01 (11 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The control unit identification for the rear right door control unit (in side part) is displayed, for example (**Fig. 32**).

- Press --> button
- Press buttons -0- and -6- to end the output.

Indicated on display:

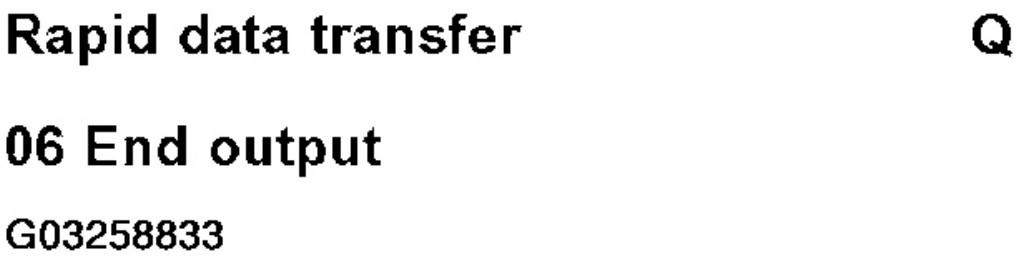


Fig. 33: Scan Tool Display - Function 01 (12 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

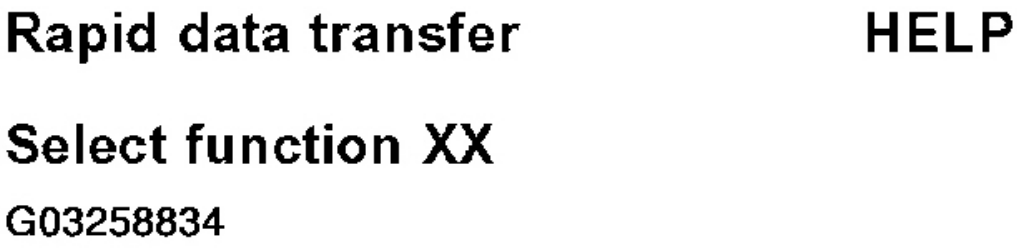


Fig. 34: Scan Tool Display - Function 01 (13 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Switch off ignition and disconnect diagnostic connection.

COMFORT SYSTEM (VEHICLES WITH POWER WINDOWS) CONTROL UNIT, CODING (FUNCTION 07)

NOTE:

- **When supplied the control unit is pre-coded according to the vehicle equipment.**
- **The coding is performed with the scan tool V.A.G 1551 or with the Vehicle diagnostic, testing and information system VAS 5051.**

- Connecting V.A.G 1551 or VAS 5051, see **SCAN TOOL, CONNECTING** . Initiating On Board Diagnosis (OBD), see **ON BOARD DIAGNOSIS (OBD) FOR THE COMFORT SYSTEM (VEHICLES WITH POWER WINDOWS), INITIATING** .

Indicated on display:

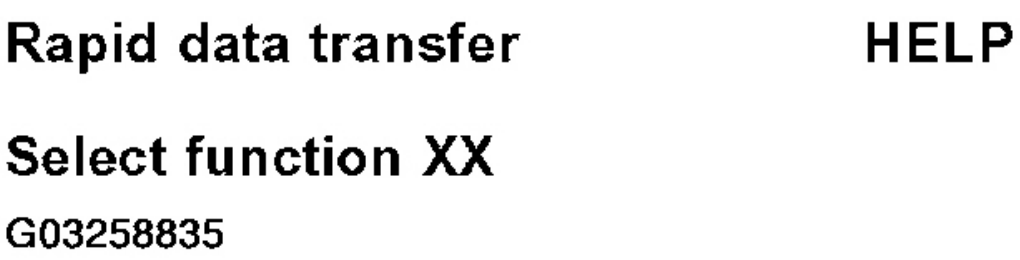


Fig. 35: Scan Tool Display - Function 07 (1 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press keys -0- and -7- (with 07 the function "Code control unit" is selected).

Indicated on display:

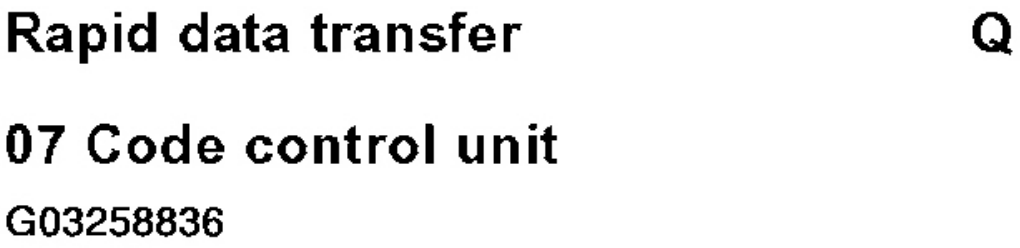


Fig. 36: Scan Tool Display - Function 07 (2 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

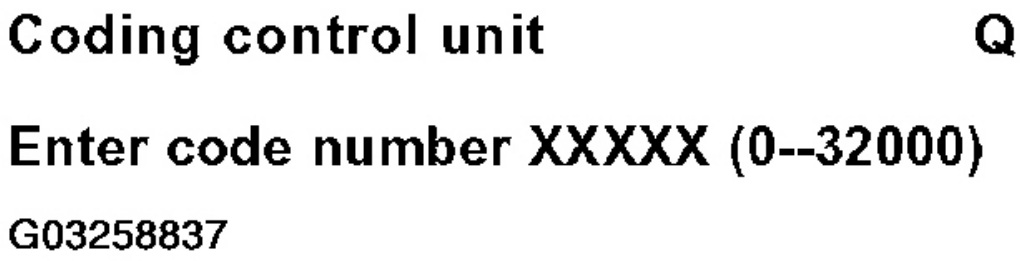


Fig. 37: Scan Tool Display - Function 07 (3 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Enter code number according to table. The following code numbers (and others) will be accepted by the control unit, but these are also used with other vehicles, country variations or vehicle equipment. See **COMFORT SYSTEM CODING TABLE** .

COMFORT SYSTEM CODING

Vehicle equipment		Code number
Central locking 2- Window regulator	Single door unlocking	00256
	All door opening	00257
Central locking 2- Window regulator and memory	Single door unlocking	00258
	All door opening	00259

- Confirm entry with -Q- button.

Control unit identification number with relevant letter index, code number (e.g. 00257) and workshop code (dealership number) will be displayed on the scan tool V.A.G 1551. See **Fig. 38** .

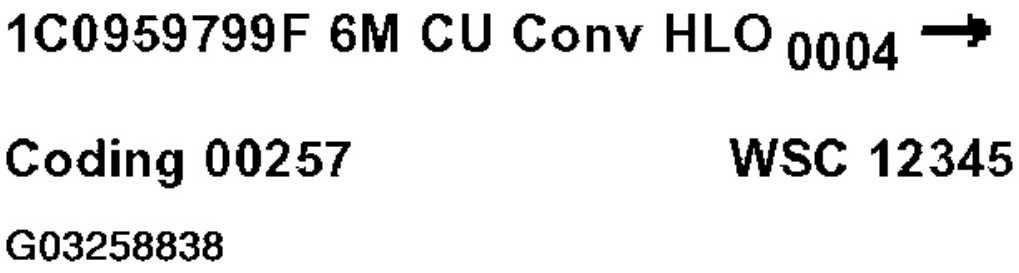


Fig. 38: Scan Tool Display - Function 07 (4 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

If the contents of the display are as shown then the coding is successful.

Subsequent to the successful coding, the door will be called up and shown in the display.

If an incorrect code number has been entered and accepted by the control unit (e.g. 04096), a display will subsequently follow indicating that no communication has taken place with for example rear door control unit.

Indicated on display:

Fig. 39: Scan Tool Display - Function 07 (5 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

If the code number entered, is not accepted by the control unit, the display will show: see **Fig. 40** .

Fig. 40: Scan Tool Display - Function 07 (6 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

In this case the control unit has not been programmed with the relevant data for the vehicle.

A check must then be completed to see if the correct control unit for the vehicle has been installed (compare Part No. and letter index), or whether an incorrect code number has been entered.

- Repeat coding.

If the control unit cannot be coded (correct control unit, correct code number), the control unit is faulty.

Ending function:

- Press --> button.

Indicated on display:

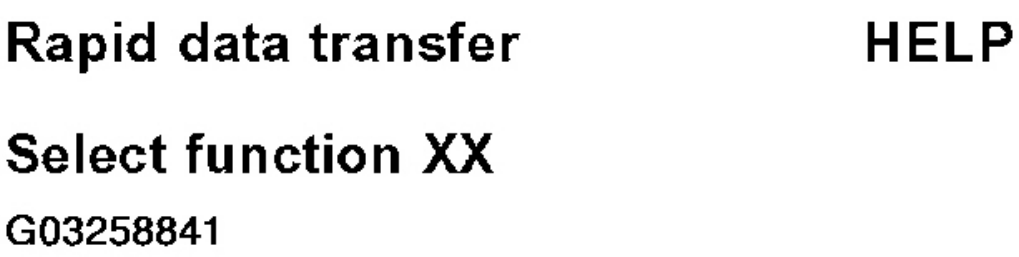


Fig. 41: Scan Tool Display - Function 07 (7 Of 9)

Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -6- to end the output.

Indicated on display:

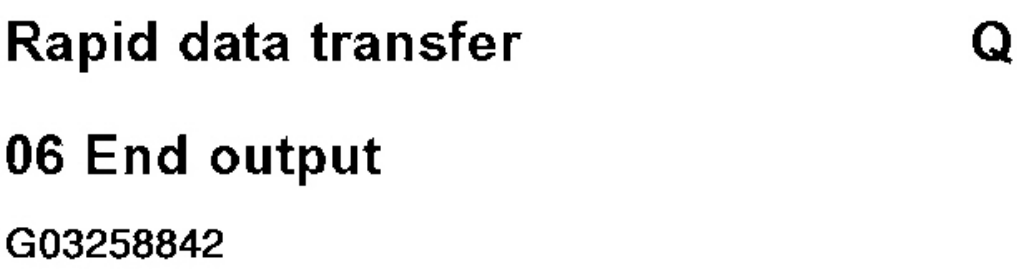


Fig. 42: Scan Tool Display - Function 07 (8 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

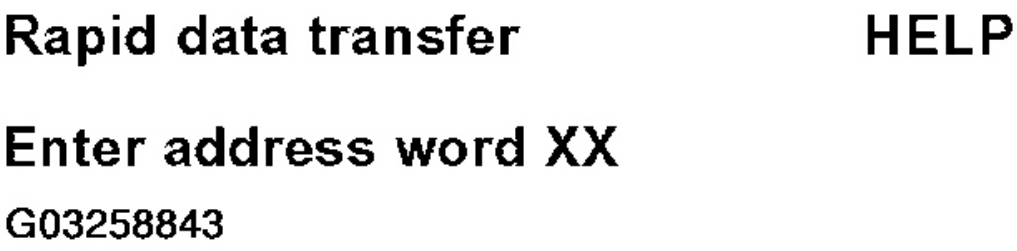


Fig. 43: Scan Tool Display - Function 07 (9 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Switch off ignition and disconnect diagnostic connection

DTC MEMORY, CHECKING (FUNCTION 02)

NOTE: **The vehicle system tester V.A.G 1552 can be used instead of the scan tool V.A.G 1551 or the Vehicle Diagnosis, Testing and Information System VAS 5051, however a print-out is not possible.**

- Connecting V.A.G 1551 or VAS 5051, see **SCAN TOOL, CONNECTING** . Initiating On Board Diagnosis (OBD), see **ON BOARD DIAGNOSIS (OBD) FOR THE COMFORT SYSTEM (VEHICLES WITH POWER WINDOWS), INITIATING** .
- Switch on printer with Print button (warning lam in button lights up) if using V.A.G 1551 or print via the print menu when using VAS 5051, if necessary.

Indicated on display:

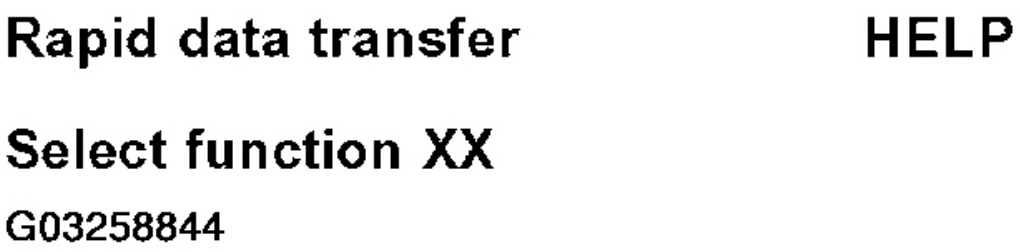


Fig. 44: Scan Tool Display - Function 02 (1 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -2-. (Function "Interrogate DTC memory" is selected with 02).

Indicated on display:

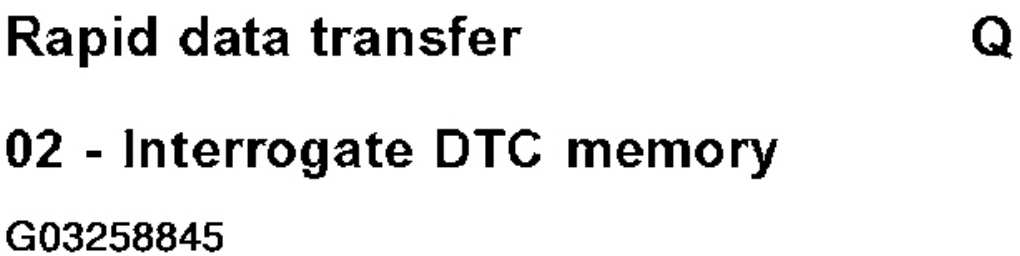


Fig. 45: Scan Tool Display - Function 02 (2 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press Print button.
- Confirm entry with -Q- button.

The number of stored malfunctions (Diagnostic Trouble Codes (DTC)) appears in the display.

Fig. 46: Scan Tool Display - Function 02 (3 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The stored malfunctions will be displayed and printed out one after the other.

NOTE: If a malfunction is recognized:

1. **Repair malfunction**
2. **Erase DTC memory (function 05)**
3. **Check DTC memory again (function 02).**

- The malfunctions printed out can be diagnosed with aid of Diagnostic Trouble Code (DTC) table, from, see **DIAGNOSTIC TROUBLE CODE (DTC) TABLE** .
- For the function "Read measured value block", see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** . Display group overview, see **DISPLAY GROUP OVERVIEW COMFORT SYSTEM 2ND GENERATION VEHICLES UP TO 05.01** for additional aids.

The measured value block is divided into 16 display group numbers. The assignment of the individual display zones can be taken from the display group overview from, see **DISPLAY GROUP OVERVIEW COMFORT SYSTEM 2ND GENERATION VEHICLES UP TO 05.01** .

If "No fault recognized" is displayed the program will return to the initial position after pressing the --> button.

Fig. 47: Scan Tool Display - Function 02 (4 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

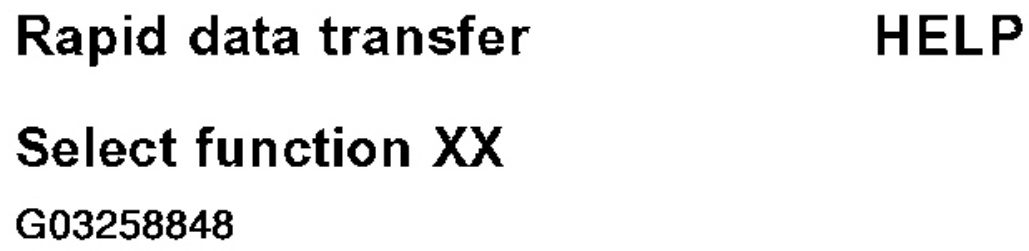


Fig. 48: Scan Tool Display - Function 02 (5 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

If something else is displayed:

See Scan tool operating instructions

- Press keys -0- and -6- to end the output.

Indicated on display:

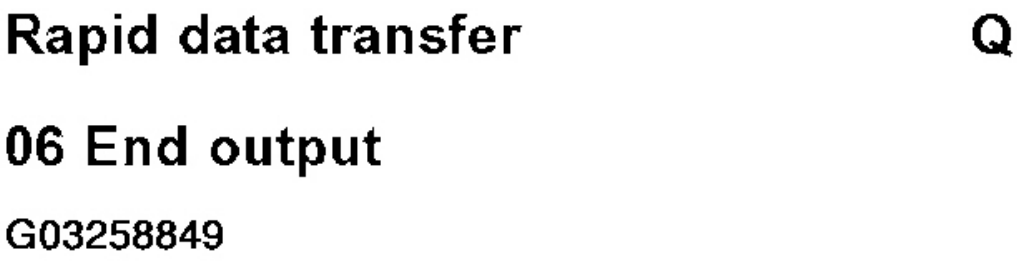


Fig. 49: Scan Tool Display - Function 02 (6 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

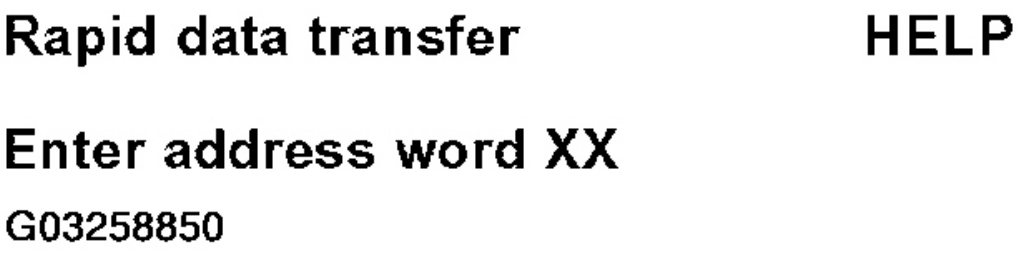


Fig. 50: Scan Tool Display - Function 02 (7 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Switch off ignition and disconnect diagnostic connection.

DTC MEMORY, ERASING (FUNCTION 05)

NOTE: The vehicle system tester V.A.G 1552 can be used instead of the scan tool V.A.G 1551 or the Vehicle Diagnosis, Testing and Information System VAS 5051, however a print-out is not possible.

- Connecting V.A.G 1551 or VAS 5051, see **SCAN TOOL, CONNECTING** . Initiating On Board

Diagnosis (OBD), see **ON BOARD DIAGNOSIS (OBD) FOR THE COMFORT SYSTEM (VEHICLES WITH POWER WINDOWS), INITIATING** .

Requirements:

- Malfunction is corrected
- Functional check has been carried out
- DTC memory interrogated again

DTC memory, erasing (Function 05)

Indicated on display:

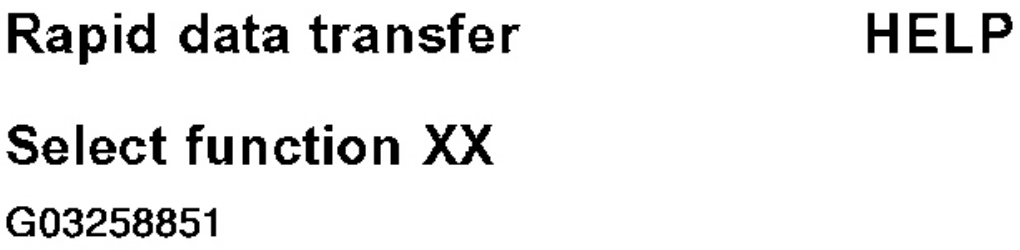


Fig. 51: Scan Tool Display - Function 05 (1 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -5- (the function "Erase DTC memory" is entered with 05).

Indicated on display:

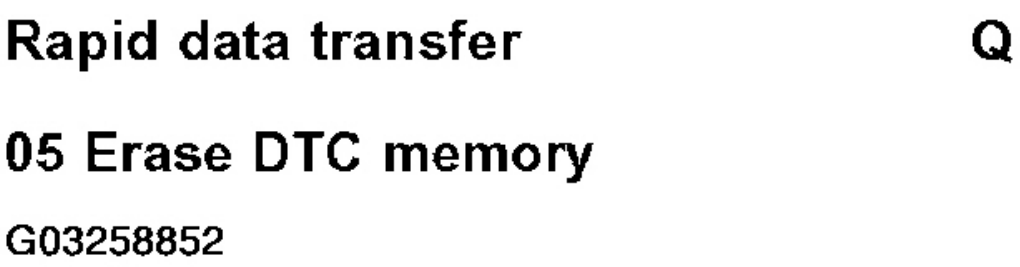


Fig. 52: Scan Tool Display - Function 05 (2 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

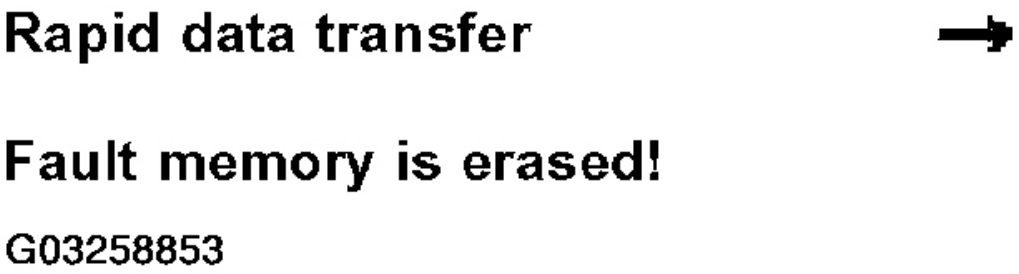


Fig. 53: Scan Tool Display - Function 05 (3 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press --> button.

Indicated on display:

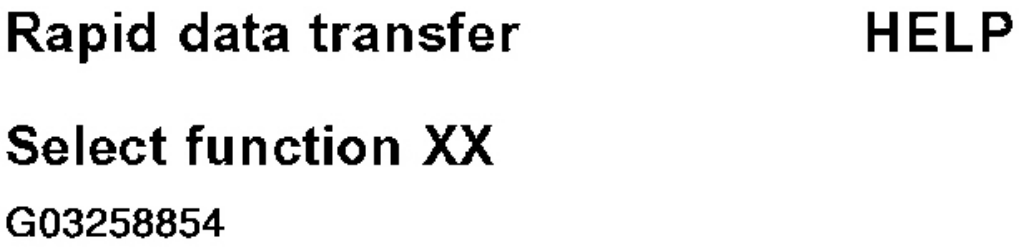


Fig. 54: Scan Tool Display - Function 05 (4 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE:

- **If this appears in the display, the test sequence has malfunctioned. See Fig. 55 .**

- **Adhere exactly to test sequence: first of all Interrogate DTC memory, then erase memory.**

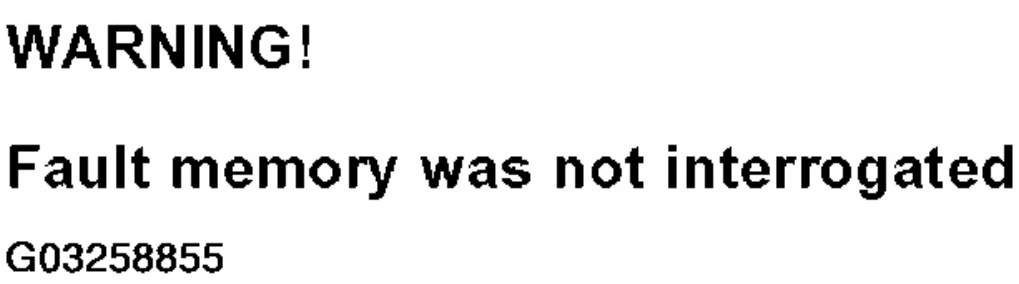


Fig. 55: Scan Tool Display - Function 05 (5 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -6- to end the output.

Indicated on display:

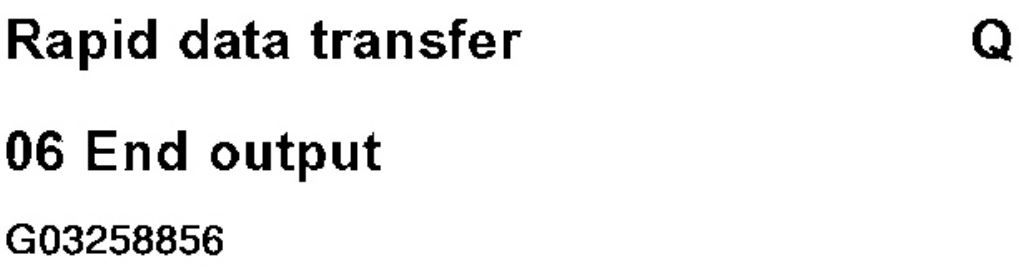


Fig. 56: Scan Tool Display - Function 05 (6 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

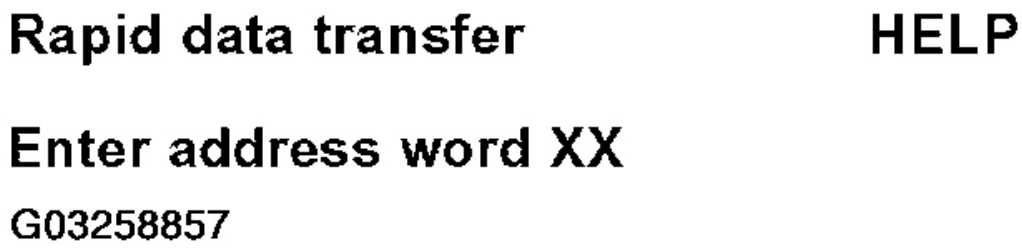


Fig. 57: Scan Tool Display - Function 05 (7 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Switch off ignition and disconnect diagnostic connection.

END OUTPUT (FUNCTION 06)

- Press keys -0- and -6- to end the output.

Indicated on display:

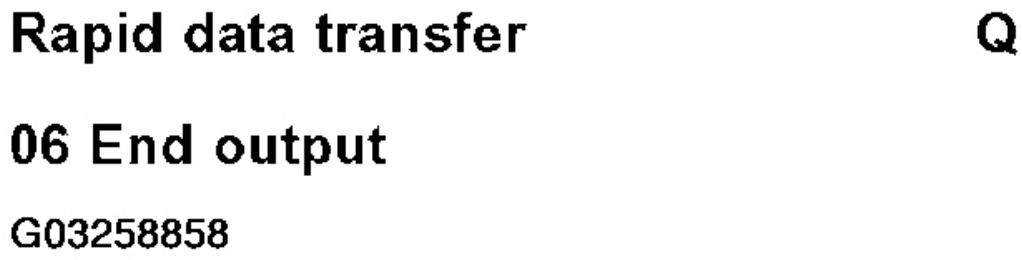


Fig. 58: Scan Tool Display - Function 06 (1 Of 2)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

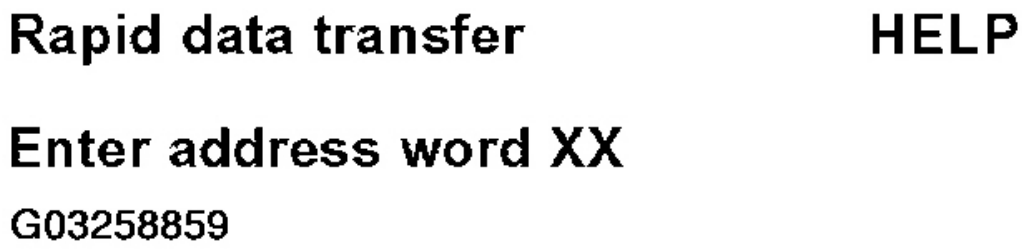


Fig. 59: Scan Tool Display - Function 06 (2 Of 2)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Switch off ignition and disconnect diagnostic connection.

DIAGNOSTIC TROUBLE CODE (DTC) TABLE

NOTE:

- **The DTCs are listed according to the 5 digit malfunction code on the left.**
- **Some of the listed DTC texts are displayed only on the VAS 5051. In this case only the malfunction code is printed out using the V.A.G 1551.**
- **Possible malfunctions depend on the vehicle equipment.**
- **Explanation of the malfunctions (e.g. "open circuit/short to ground"):**

  See Scan tool operating instructions

- **Before replacing components indicated as being faulty, check the wiring and connectors to these components as well as the ground (GND) connections using Electrical Wiring Diagram. This is particularly relevant if faults are output as "occurring sporadically" (SP).**
- **The malfunctions displayed can be localized using the test table.**
- **The DTC -"01330; Convenience central control unit; no communication" - can appear "sporadically". This has no influence on the function of the Comfort System (vehicles with power windows) and is therefore of no consequence.**
- **This malfunction "no communication" can also appear with the door control units. This has no influence on the function of the Comfort System (vehicles with power windows) and is therefore of no consequence. Erase DTC memory.**

Scan tool print out: The number 049 (example) in bold type is of no consequence. See **Fig. 60** .

01332 049

Front passenger door control unit-J387

No communication

G03258860

Fig. 60: Scan Tool Display (Number 049)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00000, 00003 & 00668)

V.A.G 1551 printout	Possible cause	Corrective action
00000 No fault recognized	If "No fault recognized" appears after performing repairs, the On Board Diagnosis (OBD) is terminated.	
00003 Control unit faulty (1)	• Wiring or connections faulty • Control unit faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Replace control unit
00668 Board voltage terminal 30 Signal too large Signal too small	• Alternator faulty • Wiring or connections faulty • Battery discharged or faulty	• Check alternator: Electrical Wiring Diagrams, Troubleshooting & Component Locations • Check wiring and connections referring to Electrical Wiring Diagram • Charge or replace battery
(1) For Comfort System (vehicles with power windows) 3rd generation.		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00849)

V.A.G 1551 printout	Possible cause	Corrective action
00849 S-terminal on ignition/starter switch -D- Undefined switch position (1)	• Terminal 15 OK, but S-terminal contact faulty • Wiring or connections faulty • Ignition/starter switch faulty	• Read measured value block. See **Measured value (data) block, reading (Function 08)** . • Check wiring and connections referring to Electrical Wiring Diagram • Replace ignition/starter switch

(1) Malfunction: switched off when the terminal 15 is switched on.

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00912 & 00913)

V.A.G 1551 printout	Possible cause	Corrective action
00912 Switch for window regulator front left -E40- Implausible signal Short to ground (GND) (1)	• Wiring or connections faulty • Button installation not OK, sticks when operated • Switch for window regulator front left -E40- faulty	• Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** • Check button
00913 Switch for window regulator front right, driver -E81- Implausible signal Short to ground (GND) (1)	• Wiring or connections faulty • Button installation not OK, sticks when operated • Switch for window regulator front right, driver -E81-(2) faulty	• Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** • Check button

(1) Is set when operated longer than 5 minutes.

(2) Part of drivers operating unit.

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00914 & 00915)

V.A.G 1551 printout	Possible cause	Corrective action
00914 Switch for window regulator rear left, driver -E53- Implausible signal Short to ground (GND) (1)	• Wiring or connections faulty • Button installation not OK, sticks when operated • Switch for window regulator rear left, driver -E53-(2) faulty	• Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** • Check button
00915 Switch for window regulator rear right, driver -E55- Implausible signal Short to ground (GND) (1)	• Wiring or connections faulty • Button installation not OK, sticks when operated • Window regulator switch RR -E55-(2) faulty	• Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** • Check button

(1) Is set when operated longer than 5 minutes.

(2) Part of drivers operating unit.

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00928)

V.A.G 1551 printout	Possible cause	Corrective action
00928 Lock unit for central locking, driver side -F220- Implausible signal	• Wiring or connections faulty • No voltage supply for central locking on driver's door • Lock unit mechanics and operating components are stiff/partially seized • Lock unit for central locking, driver side -F220- faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Check voltage supply to driver's door control unit or to door main connector (lower left footwell) • Check lock unit mechanical components and operating components and make serviceable • Replace Lock unit for central locking, driver side -F220-
Incorrect activation	• Incorrect lock unit installed (1)	• Replace lock unit
(1) If a Rest of World lock is installed in a USA vehicle, there is a safe feedback via an additional switch (safe switch).		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00929)

V.A.G 1551 printout	Possible cause	Corrective action
00929 Lock unit for central locking, passenger side -F221- Implausible signal	• Wiring or connections faulty • No voltage supply for central locking on front passengers door • Lock unit mechanics and operating components are stiff/partially seized • Lock unit for central locking, passenger side -F221- faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Check voltage supply to front passenger's door control unit or to door main connector (lower right footwell) • Check lock unit mechanical components and operating components and make serviceable • Replace Lock unit for central locking, passenger side -F221-
Incorrect activation	• Incorrect lock unit installed (1)	• Replace lock unit
(1) If a Rest of World lock is installed in a USA vehicle, there is a safe feedback via an additional switch (safe switch).		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00930)

V.A.G 1551 printout	Possible cause	Corrective action
00930 Lock unit for central locking, rear, left -	• Wiring or connections faulty • No voltage supply for central locking on front passengers	• Check wiring and connections referring to Electrical Wiring Diagram • Check voltage supply to front

F222- Implausible signal	door • Lock unit mechanics and operating components are stiff/partially seized • Lock unit for central locking, rear, left -F222- faulty	passenger's door control unit or to door main connector (lower right foot well) • Check lock unit mechanical components and operating components and make serviceable • Replace Lock unit for central locking, rear, left -F222-
Incorrect activation	• Incorrect lock unit installed (1)	• Replace lock unit
(1) If a Rest of World lock is installed in a USA vehicle, there is a safe feedback via an additional switch (safe switch).		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00931)

V.A.G 1551 printout	Possible cause	Corrective action
00931 Lock unit for central locking, rear, right -F223- Implausible signal	• Wiring or connections faulty • No voltage supply for central locking on front passengers door • Lock unit mechanics and operating components are stiff/partially seized • Lock unit for central locking, rear, right -F223- faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Check voltage supply to front passenger's door control unit or to door main connector (lower right foot well) • Check lock unit mechanical components and operating components and make serviceable • Replace Lock unit for central locking, rear, right -F223-
Incorrect activation	• Incorrect lock unit installed (1)	• Replace lock unit
(1) If a Rest of World lock is installed in a USA vehicle, there is a safe feedback via an additional switch (safe switch).		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00932)

V.A.G 1551 printout	Possible cause	Corrective action
00932 Window regulator motor, driver's side -V147- No setting or incorrect setting	• Wiring or connections faulty • No voltage supply for central locking on driver's door • Window regulator mechanical components are stiff/partially seized (1) • Window regulator motor, driver's side -V147- faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Check voltage supply to driver's door control unit or to door main connector (lower left footwell) • Check window regulator mechanical components and make serviceable (1) • Replace window regulator motor,

	• Initialization for automatic treble/bass unit missing	driver's side -V147-
(1) It is also possible that the door window runs tight in window guides.		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00933)

V.A.G 1551 printout	Possible cause	Corrective action
00933 Window regulator motor, front passenger side -V148- No setting or incorrect setting	• Wiring or connections faulty • No voltage supply for central locking on front passengers door • Window regulator mechanical components are stiff/partially seized (1) • Window regulator motor, front passenger side -V148- faulty • Initialization for automatic treble/bass unit missing	• Check wiring and connections referring to Electrical Wiring Diagram • Check voltage supply to front passenger's door control unit or to door main connector (lower right footwell) • Check window regulator mechanical components and make serviceable (1) • Replace window regulator motor, front passenger side -V148-
(1) It is also possible that the door window runs tight in window guides.		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00934)

V.A.G 1551 printout	Possible cause	Corrective action
00934 Motor for window regulator, rear, left -V26- No setting or incorrect setting	• Wiring or connections faulty • No voltage supply for motor for window regulator, rear, left • Window regulator mechanical components are stiff/partially seized (1) • Motor for window regulator, rear, left -V26- faulty • Initialization for automatic treble/bass unit missing	• Check wiring and connections referring to Electrical Wiring Diagram • Check voltage supply on motor for window regulator, rear, left -V26- /Left Rear Power Window Control Module -J297- • Check window regulator mechanical components and make serviceable (1) • Replace Motor for window regulator, rear, left -V26-
(1) It is also possible that the door window runs tight in window guides.		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00935)

V.A.G 1551 printout	Possible cause	Corrective action
00935	• Wiring or connections faulty	• Check wiring and connections referring

Motor for window regulator, rear, right -V27- No setting or incorrect setting	• No voltage supply for window regulator motor/motor for window regulator, rear, right • Window regulator mechanical components are stiff/partially seized (1) • Window motor for window regulator, rear, right -V27- faulty • Initialization for automatic treble/bass unit missing	to Electrical Wiring Diagram • Check voltage supply on motor for window regulator, rear, right -V27- / Right Rear Power Window Control Module -J298- • Check window regulator mechanical components and make serviceable (1) • Replace motor for window regulator, rear, right -V27-
(1) It is also possible that the door window runs tight in window guides.		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00936)

V.A.G 1551 printout	Possible cause	Corrective action
00936 Window regulator switch, front passenger's side -E107- Implausible signal Short to positive (1)	• Wiring or connections faulty • Button installation not OK, sticks when operated • Window regulator switch, front passenger's side -E107- faulty	• Read measured value block. See **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** • Check button • Replace window regulator switch, front passenger's side -E107-
(1) Fault recorded if button pressed in a direction for longer than 5 minutes, or both signals (open, close) occur simultaneously.		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00937)

V.A.G 1551 printout	Possible cause	Corrective action
00937(1) Window regulator switch, rear, right -E54- Implausible signal Short to positive (2)	• Wiring or connections faulty • Button installation not OK, sticks when operated • Switch for window regulator rear left, drive -E54- faulty	• Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** • Check button • Replace window regulator rear left, driver -E54-
(1) Not for 2-door vehicles. (2) Is set when operated longer than 5 minutes.		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00938)

V.A.G 1551 printout	Possible cause	Corrective action

00938[1] Switch for window regulator rear left, driver -E52- Implausible signal Short to positive [2]	• Wiring or connections faulty • Button installation not OK, sticks when operated • Switch for window regulator rear left, driver -E52- faulty	• Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** • Check button

[1] not for 2-door vehicles

[2] is set when operated longer than 5 minutes

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00939)

V.A.G 1551 printout	Possible cause	Corrective action
00939 Driver's side, mirror adjustment motor -V149-	• Wiring or connections faulty • No voltage supply to driver's door • Driver's side, mirror adjustment motor -V149- faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Check voltage supply to driver's door control unit or to door main connector (lower left footwell) • Replace mirror adjustment motor, driver's side -V149-

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00940)

V.A.G 1551 printout	Possible cause	Corrective action
00940 Front passenger's side, mirror adjustment motor -V150-	• Wiring or connections faulty • No voltage supply for central locking on front passengers door • Front passenger's side, mirror adjustment motor -V150- faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Check voltage supply to front passenger's door control unit or to door main connector (lower right footwell) • Replace front passenger's side, mirror adjustment motor -V150-

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00941)

V.A.G 1551 printout	Possible cause	Corrective action
00941 Exterior mirror retraction motor, driver's side -V121-	• Wiring or connections faulty • No voltage supply to driver's door • Exterior mirror retraction motor, driver's side -V121- faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Check voltage supply to driver's door control unit or to door main connector (lower left footwell) • Replace exterior mirror retraction motor, driver's side -V121-

		• Check exterior mirror retraction function (1)

(1) To do this mirrors must the vehicle must not be retracted be driven at greater than 15 km/h either on a rolling road or during a test drive. The again. Retracting mirrors must though return to their normal position.

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00942)

V.A.G 1551 printout	Possible cause	Corrective action
00942 Exterior mirror retraction motor, passenger's side -V122-	• Wiring or connections faulty • No voltage supply for central locking on front passengers door • Exterior mirror retraction motor, passenger's side -V122- faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Check voltage supply to front passenger's door control unit or to door main connector (lower right footwell) • Replace exterior mirror retraction motor, passenger's side -V122- • Check exterior mirror retraction function (1)

(1) To do this the vehicle must be driven at greater than 15 km/h either on a rolling road or during a test drive. The mirrors must not be retracted again. Retracting mirrors must though return to their normal position.

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00943 & 00944)

V.A.G 1551 printout	Possible cause	Corrective action
00943 Heated exterior mirror, driver's side -Z4-	• Mirror heater not installed • Wiring or connections faulty • Voltage supply missing at driver's/front passengers door	• Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** Measured value block indicates if rear window heater has been read correctly • Check wiring and connections referring to Electrical Wiring Diagram • Check voltage supply at door control units or door disconnection points (left or right lower footwell)
00944 Heated exterior mirror, front passenger's side -Z5-		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00945 & 00946)

V.A.G 1551 printout	Possible cause	Corrective action
00945 Crash sensor -G190-(1) Short to ground	• Wiring or connections faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Output can be checked using scan tool in

(GND) (2)		Output Diagnostic Test Mode (DTM) for airbag.
00946 Interior light -W- Short to positive	• Wiring or connections faulty • Interior light or one of the reading lights are faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Replace interior light or faulty reading light
(1) Crash sensor -G190- is internal to control module and cannot be checked separately (2) DTC is set when operated longer than 5 seconds		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00947 & 00948)

V.A.G 1551 printout	Possible cause	Corrective action
00947 Tailgate/trunk lid remote control switch -E188- Short to ground (GND)(1)	• Wiring or connections faulty • Tailgate/trunk lid remote control switch -E188- faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Replace tailgate/trunk lid remote control switch -E188-
00948 Signal "Close" sunroof Short to positive	• Wiring or connections faulty	• Check wiring and connections referring to Electrical Wiring Diagram
(1) is set when operated longer than 5 minutes		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00949 & 00950)

V.A.G 1551 printout	Possible cause	Corrective action
00949 Tailgate/trunk lid central locking motor -V53- Lock undefined switching status	• Wiring or connections faulty • Tailgate/trunk lid remote control switch -E188- faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Replace tailgate/trunk lid remote control switch -E188-
00950 Tailgate/trunk lid central locking motor -V53- Unlock undefined switching status	• Wiring or connections faulty • Tailgate/trunk lid remote control switch -E188- faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Replace tailgate/trunk lid remote control switch -E188-

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00951 & 00952)

V.A.G 1551 printout	Possible cause	Corrective action
00951 Tailgate/trunk lid remote release motor relay -J398- Short to positive	• Wiring or connections faulty • Tailgate/trunk lid remote release motor relay -J398- faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Replace tailgate/trunk lid

		remote release motor relay -J398-
00952 Signal driver's door open Short to positive	• Wiring or connections faulty • Micro-switch driver's side central locking lock unit -F220- faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Replace Lock unit for central locking, driver side -F220-

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00953 & 00954)

V.A.G 1551 printout	Possible cause	Corrective action
00953 Time limit interior light undefined switching status	• Wiring or connections faulty • Interior light, reading lights and luggage compartment connections faulty • Interior light faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Check wiring and connections referring to Electrical Wiring Diagram • Replace interior light
00954 Starter inhibitor relay -J433-(1) , (2) Short to positive	• Wiring or connections faulty • Starter inhibitor relay -J433- faulty (USA)	• Check wiring and connections referring to Electrical Wiring Diagram • Replace starter inhibitor relay -J433- (USA)
(1) Is possible that this will not be displayed in scan tool display (2) Only vehicles for USA or vehicles without immobilizer		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (00955, 00956, 00957 & 00958)

V.A.G 1551 printout	Possible cause	Corrective action
00955 Key 1 Adaptation limit exceeded	• Key not adapted • Key has been operated more than 200 times while outside range of vehicle receiver	• Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)**
00956 Key 2 Adaptation limit exceeded		
00957 Key 3 Adaptation limit exceeded		
00958		

Key 4 Adaptation limit exceeded		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (01030)

V.A.G 1551 printout	Possible cause	Corrective action
01030 Key button CL driver's side, locking Short to ground (GND)(1)	• Wiring or connections faulty • Lock cylinder sticks • Wiring or connections faulty • Micro-switch driver's side central locking lock unit -F220- faulty	• Read measured value block. See **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** . • Check lock cylinder installation • Replace Lock unit for central locking, driver side -F220-
(1) is set when operated longer than 5 minutes		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (01031)

V.A.G 1551 print-out	Possible cause	Corrective action
01031 Key button CL driver's side, unlocking Implausible signal (1) Short to ground (GND)	• Wiring or connections faulty • Lock cylinder sticks • Wiring or connections faulty • Micro-switch driver's side central locking lock unit -F220- faulty	• Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** • Check lock cylinder installation • Replace Lock unit for central locking, driver side -F220-
(1) is set when operated longer than 5 minutes		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (01032)

V.A.G 1551 print-out	Possible cause	Corrective action
01032 Key button CL front passenger's side, locking Short to ground (GND)(1)	• Wiring or connections faulty • Lock cylinder sticks • Wiring or connections faulty • Micro-switch front passenger's side central locking lock unit -F221- faulty	• Read measured value block. See **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** . • Check lock cylinder installation • Replace Lock unit for central locking, passenger side -F221-

(1) is set when operated longer than 5 minutes

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (01033)

V.A.G 1551 print-out	Possible cause	Corrective action
01033 Key button CL front passenger's side, unlocking Implausible signal(1) Short to ground (GND)	• Wiring or connections faulty • Lock cylinder sticks • Wiring or connections faulty • Micro-switch front passenger's side central locking lock unit -F221- faulty	• Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** • Replace Lock unit for central locking, passenger side -F221-
(1) is set when operated longer than 5 minutes		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (01034, 01035, 01036 & 01037)

V.A.G 1551 print-out	Possible cause	Corrective action
01034 Window regulator thermo-protection active, driver	• Wiring or connections faulty • Window regulator sticks or binding • Window regulator motor binding/stiff	• Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)**
01035 Window regulator thermo-protection active, front passenger		
01036 Window regulator thermo-protection active RL		
01037 Window regulator thermo-protection active RR		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (01038 & 01044)

V.A.G 1551 print-out	Possible cause	Corrective action
01038 Central locking thermo-protection (1)	• Wiring or connections faulty • Door lock stiff	• Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)**
01044 Control unit	• Control unit installed does not correspond to the vehicle	• Replace control unit • Inform part supplier of the problem

incorrectly coded (1)	equipment • Control unit supplied is not programmed or not fully programmed	
(1) Not indicated on display		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (01131 & 01134)

V.A.G 1551 print-out	Possible cause	Corrective action
01131 Turn signal lights activation undefined switching status	• Wiring or connections faulty • Turn signal faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Performing Output Diagnostic Test Mode (DTM), see **OUTPUT DIAGNOSTIC TEST MODE (DTM) (FUNCTION 03)** • Replace turn signal
01134 Alarm horn -H12- Undefined switch position(1) Internal voltage supply (2) no communication(2) faulty (2)	• Wiring or connections faulty • Fuse faulty • Alarm horn -H12- faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Performing Output Diagnostic Test Mode (DTM), see **OUTPUT DIAGNOSTIC TEST MODE (DTM) (FUNCTION 03)** • Replace fuse • Replace alarm horn -H12-
(1) Fault type for conventional horn. (2) Fault type for intelligent horn.		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (01135 & 01141)

V.A.G 1551 print-out	Possible cause	Corrective action
01135 Interior monitoring sensors Open circuit Malfunction	• Wiring or connections faulty • Sensors for monitoring interior not installed • Interior monitoring sensors faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** • Check installation • Replace interior monitoring sensors
01141 Luggage compartment unlocking switch -E165- Implausible signal(1)	• Wiring or connections faulty • Luggage compartment unlocking switch -E165- faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Replace luggage compartment unlocking switch -E165-
is set when operated longer than 5 minutes		

(1)

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (01179 & 01312)

V.A.G 1551 print-out	Possible cause	Corrective action
01179 Key programming incorrect	• (1) Key adaption (function 10) has not been performed correctly	• See description for adapting keys with radio wave remote control, see **RADIO FREQUENCY REMOTE CONTROL, PROGRAMMING IGNITION KEYS, MATCHING (ADAPTATION)** • Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)**
01312 Group-/drive train data bus Drive train data bus		• Read fault memory

(1) It is displayed on which position (1 ...4) the key is adapted (learned).

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (01328)

V.A.G 1551 print-out	Possible cause	Corrective action
01328 Convenience/data BUS faulty	• Wiring or connections faulty • Control unit faulty	• Check wiring and connections referring to Electrical Wiring Diagram Wiring OK, then: • Separate all door connectors and then reconnect one after the other. Observe measured value block when doing this • Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** • Replace the relevant control unit which has blocked the Bus Remember: New fault entries will be made which can be erased • Replace relevant control unit

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (01329)

V.A.G 1551 print-out	Possible cause	Corrective action
01329 Comfort System (vehicles with power windows data BUS in emergency mode	• Wiring or connection faulty	• Check wiring and connections referring to Electrical Wiring Diagram Wiring OK, then: • Separate all door connectors and then reconnect one after the other. Observe measured value block when doing this.

		• Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** • Replace the relevant control unit which has blocked the Bus. Remember: New fault entries will be made which can be erased.

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (01330)

V.A.G 1551 print-out	Possible cause	Corrective action
01330 Central control unit for Comfort System (vehicles with power windows) Malfunction Voltage supply too high Voltage supply too low No communication	• Central control unit for Comfort System (vehicles with power windows) faulty • Battery -A- faulty or discharged • Alternator -C- faulty • Voltage regulator -C1- faulty • Not relevant	• Replace central control unit for Comfort System (vehicles with power windows) • Check voltage supply. • Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** • The system, even with the fault entry, is OK. • Erase DTC memory • Perform functional check

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (01331)

V.A.G 1551 print-out	Possible cause	Corrective action
01331 Door control module driver's side -J386- Malfunction No communication Voltage supply too high Voltage supply too low	• Door control unit, driver's side -J386- faulty • Wiring or connections faulty • Battery -A- faulty or discharged • Alternator -C- faulty • Voltage regulator -C1- faulty	• Replace door control module, driver's side -J386- • The system, even with the fault entry, is OK. • Erase DTC memory • Perform functional check • Check wiring and connections referring to Electrical Wiring Diagram • Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** When doing this, it can be checked whether the door control unit is installed or not • Check voltage supply. • Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)**

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (01332)

V.A.G 1551 print-out	Possible cause	Corrective action
01332 Door control module, passenger side -J387- Malfunction No communication Voltage supply too high Voltage supply too low	• Door control unit, passenger's side -J387- faulty • Wiring or connections faulty • Battery -A- faulty or discharged • Alternator -C- faulty • Voltage regulator -C1- faulty	• Replace Door control module, passenger side -J387- • The system, even with the fault entry, is OK. • Erase DTC memory • Perform functional check • Check wiring and connections referring to Electrical Wiring Diagram • Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** When doing this, it can be checked whether the door control unit is installed or not • Check voltage supply. • Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)**

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (01333)

V.A.G 1551 print-out	Possible cause	Corrective action
01333 Door control module, rear, left -J388- Malfunction No communication Voltage supply too high Voltage supply too low	• Door control unit RL -J388- faulty • Wiring or connections faulty • Battery -A- faulty or discharged • Alternator -C- faulty • Voltage regulator -C1- faulty	• Replace Door control module, rear, left -J388- • The system, even with the fault entry, is OK. • Erase DTC memory • Perform functional check • Check wiring and connections referring to Electrical Wiring Diagram • Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** When doing this, it can be checked whether the door control unit is installed or not • Check voltage supply. • Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)**

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (01334)

V.A.G 1551 print-out	Possible cause	Corrective action
01334		

Door control module, rear, right -J389 Malfunction No communication Voltage supply too high Voltage supply too low	• Door control unit RR -J389- faulty • Wiring or connections faulty • Battery -A- faulty or discharged • Alternator -C- faulty • Voltage regulator -C1- faulty	• Replace Door control module, rear, right -J389- • The system, even with the fault entry, is OK. • Erase DTC memory • Perform functional check • Check wiring and connections referring to Electrical Wiring Diagram • Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** When doing this, it can be checked whether the door control unit is installed or not • Check voltage supply. • Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)**

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (01335)

V.A.G 1551 print-out	Possible cause	Corrective action
01335 Driver's Seat/Mirror Position Control Module -J543-(1) No communication	• Wiring or connections faulty • Seat memory control unit diagnosis -J543- (no communication with door control unit) (1)	• Check wiring and connections referring to Electrical Wiring Diagram • Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** • The Driver's Seat/Mirror Position Control Module -J543- is equipped with its own K wire, this can be read via address word "36"
(1) Function: The control unit saves the seat/mirror position and can activate these again (with corresponding equipment only).		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (01336)

V.A.G 1551 printout	Possible cause	Corrective action
01336 Group-/drive train convenience	• Malfunction • in single-wire operating mode	• Check wiring and connections referring to Electrical Wiring Diagram Wiring OK, then: • Separate all door connectors and then reconnect

		one after the other. Observe measured value block when doing this • Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** • Replace the relevant control unit which has blocked the Bus Remember: New fault entries will be made which can be erased

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (01340 & 01358)

V.A.G 1551 printout	Possible cause	Corrective action
01340 Mirror positioning switch Implausible signal(1)	• Wiring or connections faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)**
01358 Interior locking switch, driver's side -E150- Implausible signal Short to ground (GND) (1)	• Wiring or connections faulty • Wiring or connections faulty • Interior locking switch, driver's side -E150- faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** • Check wiring and connections referring to Electrical Wiring Diagram • Replace Switch for interior lock, driver side -E150-
(1) is set when operated longer than 5 minutes		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (01359)

V.A.G 1551 printout	Possible cause	Corrective action
01359 Interior locking switch, front passenger's side -E198- undefined switching status Short to ground (GND) (1)	• Wiring or connections faulty • Wiring or connections faulty • Interior locking switch, front passenger's side -E198- faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** • Check wiring and connections referring to Electrical Wiring Diagram • Replace passenger side interior lock switch -E198-

(1) is set when operated longer than 5 minutes

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (01362)

V.A.G 1551 printout	Possible cause	Corrective action
01362 Close switch for tailgate/trunk lid - F124- Short to ground (GND) (1)	• Wiring or connections faulty • Lock mechanism mechanics stiff or lock cylinder stiff	• Check wiring and connections referring to Electrical Wiring Diagram • Check lock mechanism mechanics and return to serviceable condition • Replace lock cylinder • Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)**
(1) is set when operated longer than 5 minutes		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (01389)

V.A.G 1551 printout	Possible cause	Corrective action
01389 Open (unlock) switch for tailgate/trunk lid - F124- Short to ground (GND) Implausible signal(1)	• Wiring or connections faulty • Lock mechanism mechanics stiff or lock cylinder stiff	• Check wiring and connections referring to Electrical Wiring Diagram • Check lock mechanism mechanics and return to serviceable condition • Replace lock cylinder • Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)**
(1) is set when operated longer than 5 minutes		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (01483 & 01384)

V.A.G 1551 printout	Possible cause	Corrective action
01483 Activation of tailgate remote release undefined switching status	• Wiring or connections faulty	• Check wiring and connections referring to Electrical Wiring Diagram
01384 Locking key button CL Short to ground (GND) (1)	• Wiring or connections faulty • Lock mechanism mechanics stiff or lock cylinder stiff	• Check wiring and connections referring to Electrical Wiring Diagram • Check lock mechanism mechanics and return to serviceable condition • Replace lock cylinder

		• Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)**
(1) is set when operated longer than 5 minutes		

DIAGNOSTIC TROUBLE CODE (DTC) - COMFORT SYSTEM (01385 & 65535)

V.A.G 1551 printout	Possible cause	Corrective action
01385 Unlocking key button CL Short to ground (GND) (1)	• Wiring or connections faulty • Lock mechanism mechanics stiff or lock cylinder stiff	• Check wiring and connections referring to Electrical Wiring Diagram • Check lock mechanism mechanics and return to serviceable condition • Replace lock cylinder • Read measured value block, see **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)**
65535 Control unit faulty	• Wiring or connections faulty • Control unit faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Replace control unit
65535 No fault detected(2)	If "No fault recognized" appears after performing repairs, the On Board Diagnosis (OBD) is terminated.	
(1) is set when operated longer than 5 minutes (2) for Comfort System (vehicles with power windows) 3rd generation		

OUTPUT DIAGNOSTIC TEST MODE (DTM) (FUNCTION 03)

The components displayed in the Output Diagnostic Test Mode (DTM) can differ depending upon the equipment installed on the vehicle. For example on vehicles without ATA there will be no step "1" as listed in the table below.

The Output Diagnostic Test Mode (DTM) activates the following components in the stated sequence. See **OUTPUT DIAGNOSTIC TEST MODE (DTM) - Function 03 (2nd Generation)** and **OUTPUT DIAGNOSTIC TEST MODE (DTM) - Function 03 (3rd Generation)** .

Comfort System (vehicles with power windows) 2nd generation

Output Diagnostic Test Mode (DTM) - Function 03 (2nd Generation)

Step	Display in tester	Reaction
	Alarm horn (for anti-theft alarm)	• Horn sounds continuously
	Turn signal lights activation (for anti-theft alarm)	• Activated continuously (lights up continously)

	Interior light, reading lights	• Interior and reading lights are activated
	Signal "Close" sunroof	• Sliding roof closes(1)
	Central locking "Safe" warning lamp -K133-	• "Safe" -LED lights up
	Instrument illumination	• Instrument illumination active(2)
	END	• Information: End of regular final control test

(1) When performing final control test the "signal close sliding sunroof", the ignition and S-terminal must be inactive (no key in ignition/starter switch) and one of the front doors must be open.

(2) Switch in operating unit.

Comfort System (vehicles with power windows) 3rd generation

Output Diagnostic Test Mode (DTM) - Function 03 (3rd Generation)

Step	Display in tester	Reaction
	Interior light, reading lights	• Interior and reading lights are activated
	Central locking "Safe" warning lamp -K133-	• "Safe" -LED lights up
	Instrument illumination	• Instrument illumination active(1)
	Signal "Close" sunroof	• Sliding roof closes(2)
	Turn signal lights activation (for anti-theft alarm)	• Activated continuously (lights up continously)
	Alarm horn (for anti-theft alarm)	• Horn sounds continuously
	END	• Information: End of regular final control test

(1) Switch in operating unit.

(2) When performing final control test the "signal close sliding sunroof", the ignition and S terminal must be inactive (no key in ignition/starter switch) and one of the front doors must be open.

Work sequence

- Connecting V.A.G 1551 or VAS 5051, see **SCAN TOOL, CONNECTING** . Initiating On Board Diagnosis (OBD), see **ON BOARD DIAGNOSIS (OBD) FOR THE COMFORT SYSTEM (VEHICLES WITH POWER WINDOWS), INITIATING** .

Indicated on display:

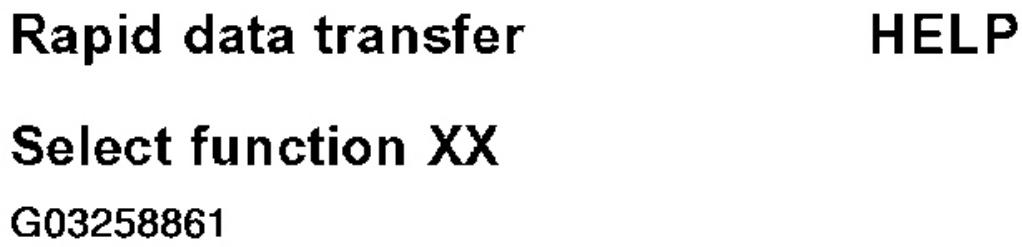


Fig. 61: Scan Tool Display - Function 03 (1 Of 3)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Operate V.A.G 1551 or VAS 5051 taking into account the information on the display:
- Input 03 for "Output Diagnostic Test Mode (DTM)" function.
- Switch off ignition and remove ignition key from ignition lock.

Indicated on display:

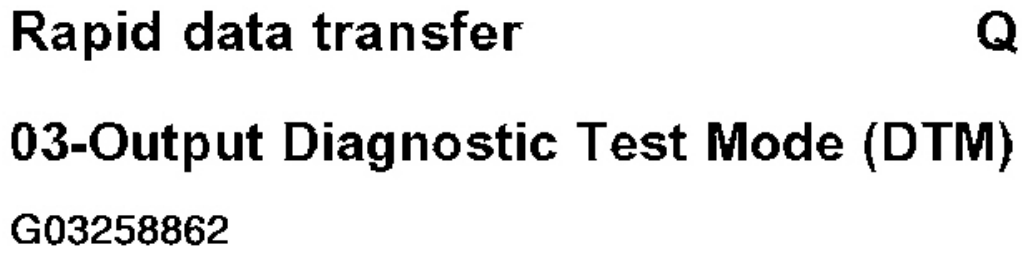


Fig. 62: Scan Tool Display - Function 03 (2 Of 3)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

Fig. 63: Scan Tool Display- Function 03 (3 Of 3)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Perform individual tests: See **OUTPUT DIAGNOSTIC TEST MODE (DTM) - Function 03 (2nd Generation)** or **OUTPUT DIAGNOSTIC TEST MODE (DTM) - Function 03 (3rd Generation)** .

The Output Diagnostic Test Mode (DTM) can be aborted by pressing the -C- button.

- Press --> button.

If a component does not function:

- Continue Output Diagnostic Test Mode (DTM) to the end.

MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)

- Connecting V.A.G 1551 or VAS 5051, see **SCAN TOOL, CONNECTING** . Initiating On Board Diagnosis (OBD), see **ON BOARD DIAGNOSIS (OBD) FOR THE COMFORT SYSTEM (VEHICLES WITH POWER WINDOWS), INITIATING** .

The measured value block is divided into display group numbers. The assignment of the individual display zones can be taken from the display group overview. See **Display group overview Comfort System 2nd generation vehicles up to 05.01** or **Display group overview Comfort System 3rd generation vehicles from 06.01** .

NOTE: Some of the display groups are only relevant for vehicles with the corresponding equipment.

Indicated on display:

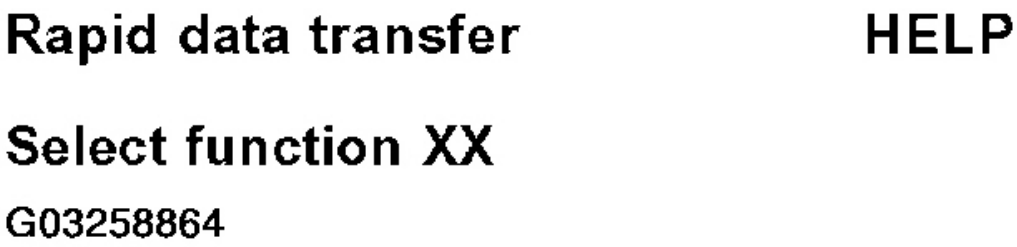


Fig. 64: Scan Tool Display - Function 08 (1 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -8- (08 initiates function "Read measured value block").

Indicated on display:

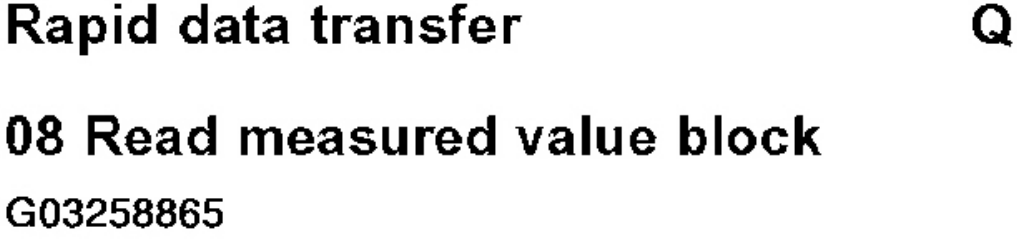


Fig. 65: Scan Tool Display - Function 08 (2 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

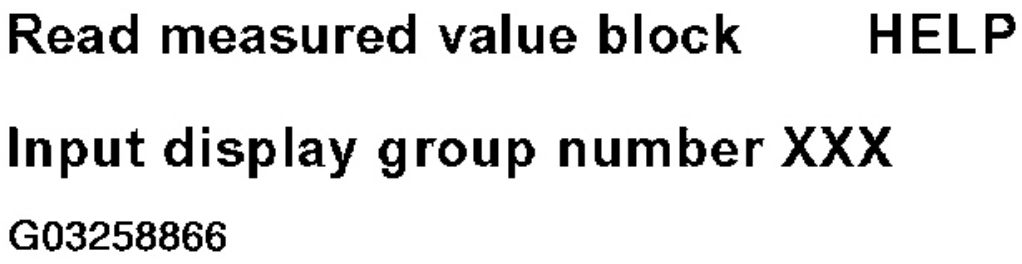


Fig. 66: Scan Tool Display - Function 08 (3 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE: The display group number 001 is an example, to illustrate the sequence.

- Press buttons -0-, -0- and -1- for "Display group number 1" and confirm entry with -Q- button.

Indicated on display: (1...4 = display zones)

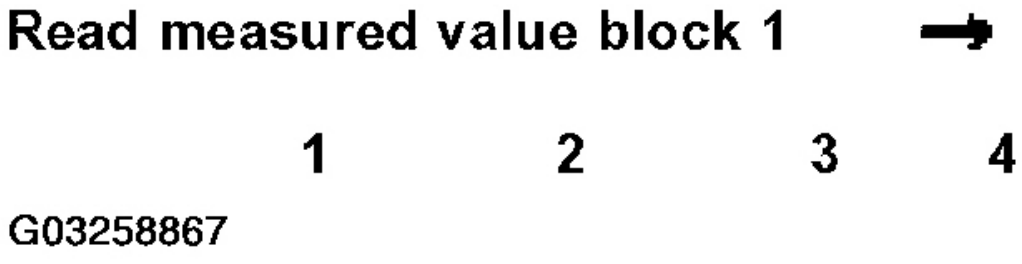


Fig. 67: Scan Tool Display - Function 08 (4 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE: To change to another display group proceed as shown in SCAN TOOL DISPLAY GROUP CHANGE .

SCAN TOOL DISPAY GROUP CHANGE

Display group	V.A.G 1551	V.A.G 1552
Higher	Press button 3	Press "UARR" button

Lower	Press button 1	Press "DARR" button
Skip	Press button C	Press button C

- Displayed after pressing -C- button.

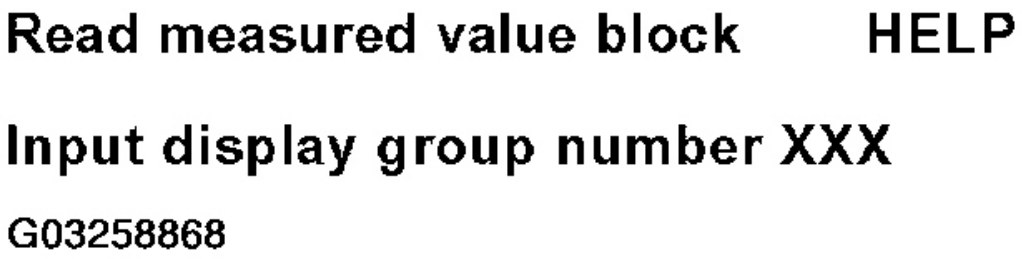


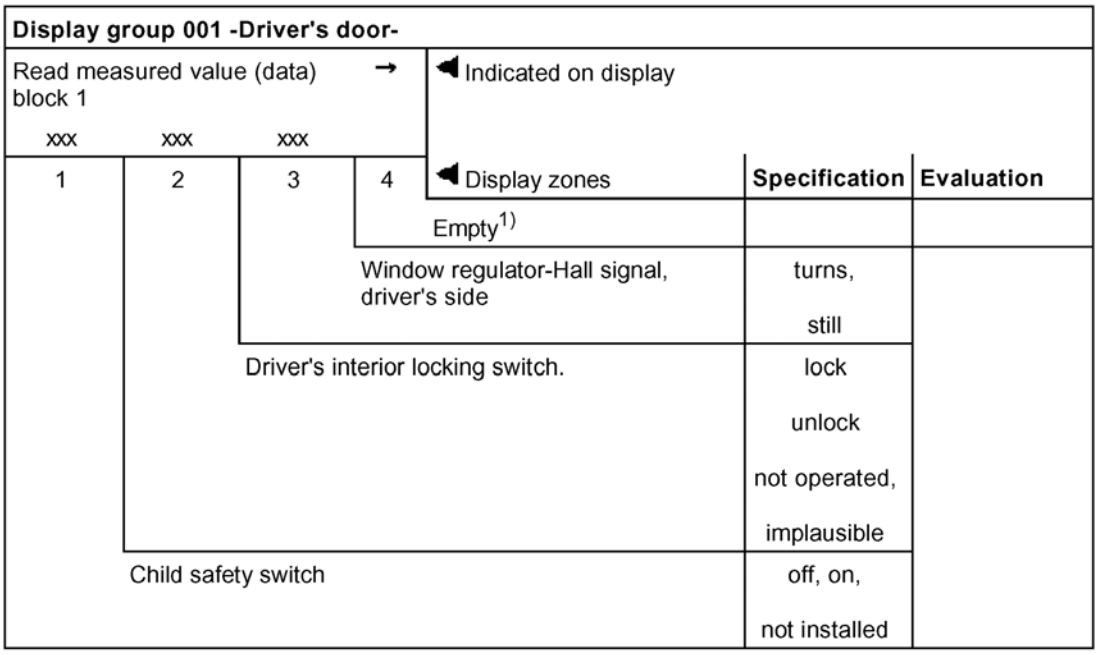
Fig. 68: Scan Tool Display - Function 08 (5 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Now enter the display group number required.

DISPLAY GROUP OVERVIEW COMFORT SYSTEM 2ND GENERATION VEHICLES UP TO 05.01

Break down of display content for display group number 001



1) Empty means in this case: Display zone is blank

G03258869

Fig. 69: Display Group 001 Chart - 2nd Generation Vehicles Up To 05.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 001

EVALUATING DISPLAY GROUP NUMBER 001 CHART - 2ND GENERATION VEHICLES UP TO 05.01

Display zone	Designation	Display contents	Corrective action
1	Child safety switch	off on not installed	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and install tightly together while simultaneously observing display. If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Interrogate DTC memory again • Functions only when ignition is "on"
2	Driver's interior locking switch.	lock unlock not operated implausible	
3	Window regulator-Hall signal, driver's side	turns still	

Break down of display content for display group number 002

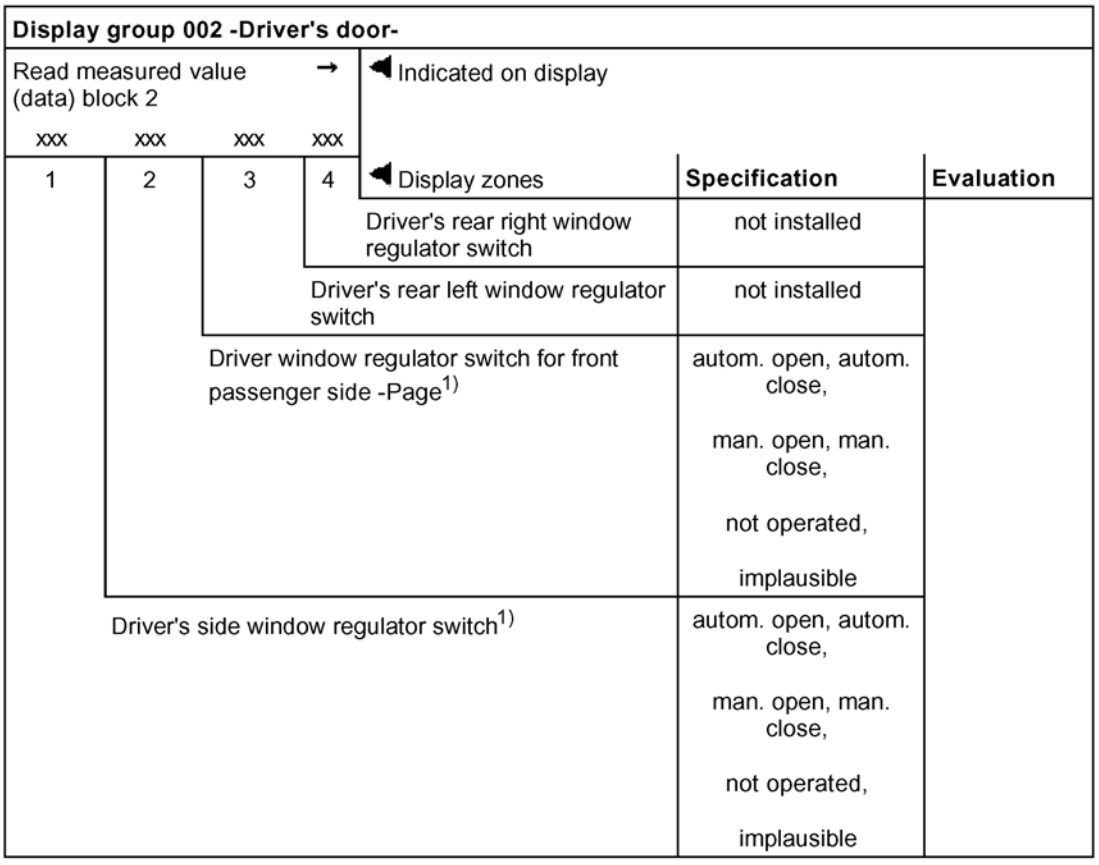


Fig. 70: Display Group 002 Chart - 2nd Generation Vehicles Up To 05.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

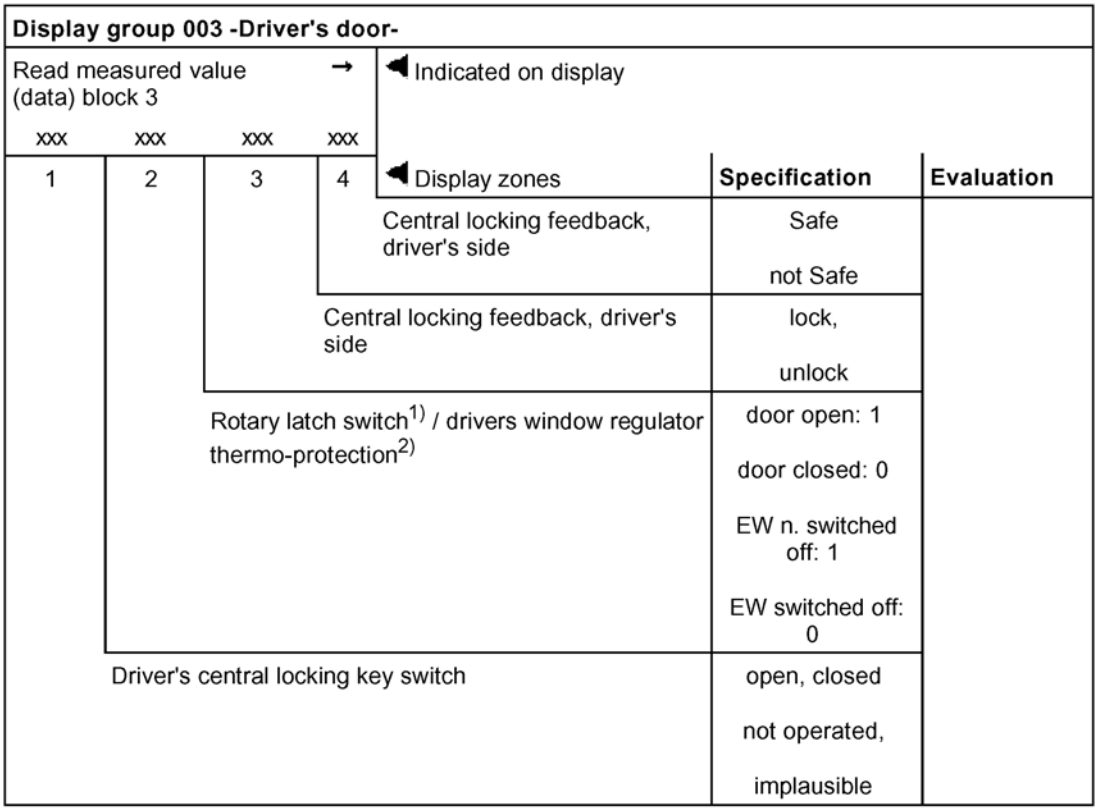
Evaluating display group number 002

EVALUATING DISPLAY GROUP NUMBER 002 CHART - 2ND GENERATION VEHICLES UP TO 05.01

Display zone	Designation	Display contents	Corrective action
1	Driver's side window regulator switch(1)	autom. open, autom. close, man. open, man. close, not operated, implausible	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and install tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component
2	Driver window regulator switch for	autom. open, autom.	

	front passenger side (1)	close, man. open, man. close, not operated, implausible	• Perform functional check • Check DTC memory again
3	Driver's rear left window regulator switch	Not relevant	
4	Driver's rear right window regulator switch	Not relevant	
(1) Part of door operating unit			

Break down of display content for display group number 003



1) There is a contact switch in door lock

2) Software thermo protection (overload protection for window regulator motor). The window regulator will be switched off for approx. 10...20 seconds

G03258871

Fig. 71: Break Down Display Group 003 Chart - 2nd Generation Vehicles Up To 05.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 003

EVALUATING DISPLAY GROUP NUMBER 003 CHART - 2ND GENERATION VEHICLES UP TO 05.01

Display zone	Designation	Display contents	Corrective action
1	Driver's central locking key switch	open closed not operated implausible	• Visual check of wiring • Check lock mechanics • Check that connections of relevant current circuit are correctly connected and install tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again
2	Rotary latch switch(1) / drivers window regulator thermo-protection(2)	door open: 1 door closed: 0 EW n. switched off: 1 EW switched off:0	
3	Central locking feedback locked, driver's side	lock unlock	
4	Central locking feedback "safe", driver's side	Safe not Safe	

(1) There is a contact switch in door lock.

(2) Software thermo protection (overload protection for window regulator motor). The window regulator will be switched off for approx. 10-20 seconds.

Break down of display content for display group number 003

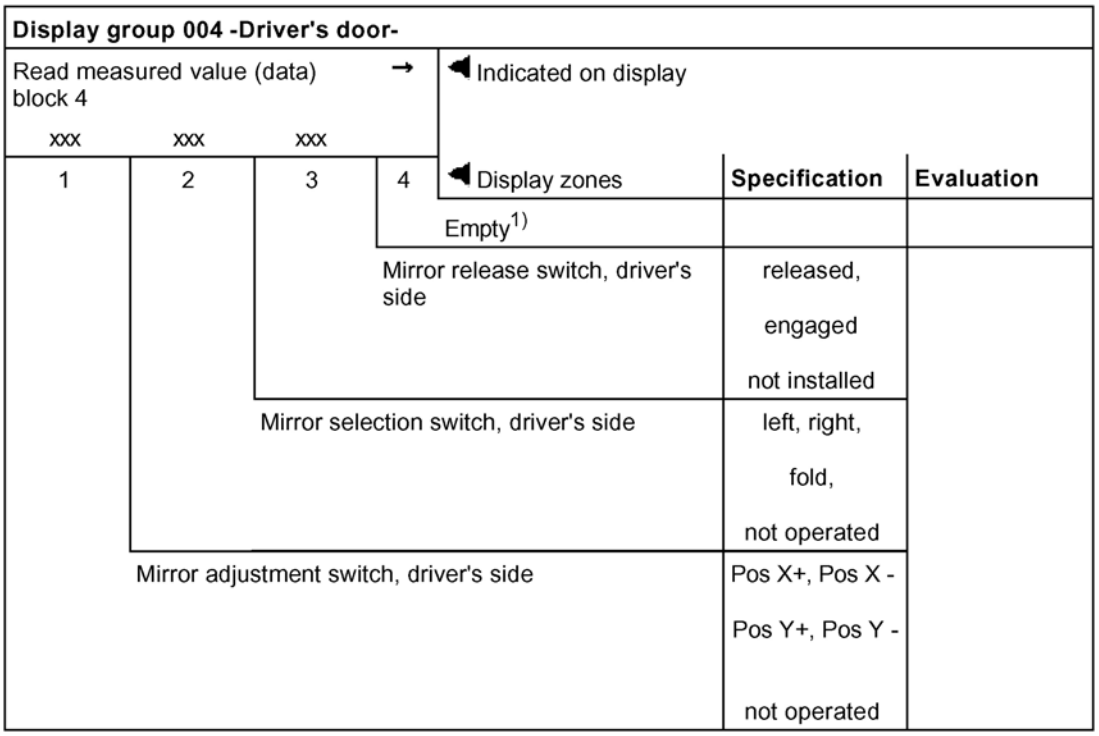


Fig. 72: Break Down Display Group 004 Chart - 2nd Generation Vehicles Up To 05.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

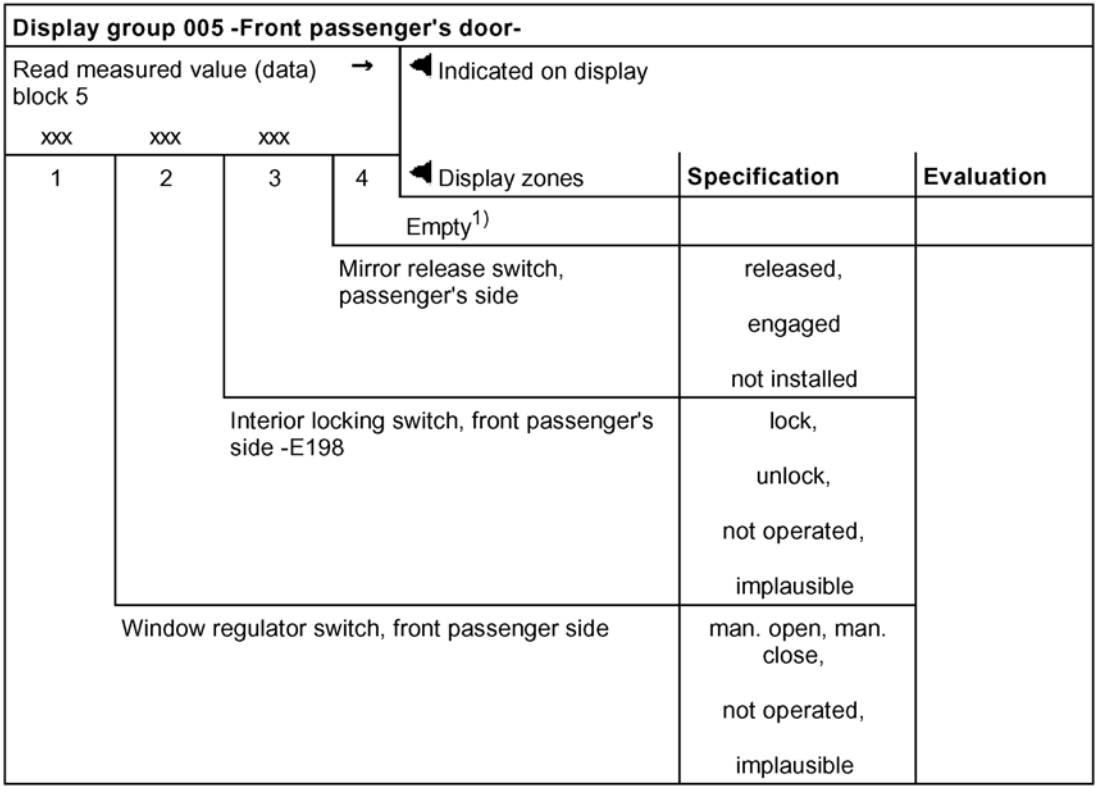
Evaluating display group number 004

EVALUATING DISPLAY GROUP NUMBER 004 CHART - 2ND GENERATION VEHICLES UP TO 05.01

Display zone	Designation	Display contents	Corrective action
1	Mirror adjustment switch, driver's side	Pos X+ Pos X- Pos Y+ Pos Y- not operated	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and install tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again
2	Mirror selection switch, driver's side	left right fold, not operated	
3	Mirror release	released	

	switch, driver's side	in detent not installed	

Break down of display content for display group number 005



1) Empty means in this case: Display zone is blank

G03258873

Fig. 73: Break Down Group Display 005 Chart - 2nd Generation Vehicles Up To 05.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 005

EVALUATING DISPLAY GROUP NUMBER 005 CHART - 2ND GENERATION VEHICLES UP TO 05.01

Display zone	Designation	Display contents	Corrective action
1	Window regulator switch, front passenger side	autom. open, autom. close, man. open, man. close,	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and install tightly together while simultaneously observing display

		not operated, implausible	• If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again
2	Interior locking switch, front passenger's side - E198-(1)	lock unlock not operated implausible (2)	
3	Mirror release switch, passenger's side	released in detent not installed	

(1) Lock/unlock switch, front passenger's side

(2) Implausible means in this case: both directions simultaneously!

Break down of display content for display group number 006

Display group 006 -Front passenger's door-

Read measured value (data) block 6 → Indicated on display

xxx	xxx	xxx	xxx	Display zones	Specification	Evaluation
1	2	3	4	Central locking feedback, front passenger's side	Safe not Safe	
				Central locking feedback, front passenger's side	lock, unlock	
				Rotary latch switch[1] / front passenger's window regulator thermo-protection[2]	door open: 1 door closed: 0 EW n. switched off: 1 EW switched off: 0	
				Key switch, front passenger's side	open, closed, not operated, implausible	

[1] There is a contact switch in door lock

[2] Software thermo protection (overload protection for window regulator motor). The window regulator will be switched off for approx. 10...20 seconds

G03258874

Fig. 74: Break Down Group Display 006 Chart - 2nd Generation Vehicles Up To 05.01

Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 006

EVALUATING DISPLAY GROUP NUMBER 006 CHART - 2ND GENERATION VEHICLES UP TO 05.01

Display zone	Designation	Display contents	Corrective action
1	Key switch, front passenger's side	open closed not operated implausible	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and install tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again
2	Rotary latch switch(1) / front passenger's window regulator thermo-protection (2)	door open: 1 door closed: 0 EW n. switched off: 1 EW switched off:0	
3	Central locking feedback, front passenger's side	locked unlocked	
4	Central locking feedback, front passenger's side	Safe not Safe	

(1) There is a contact switch in door lock.

(2) Software thermo protection (overload protection for window regulator motor). The window regulator will be switched off for approx. 10-20 seconds.

Break down of display content for display group number 007

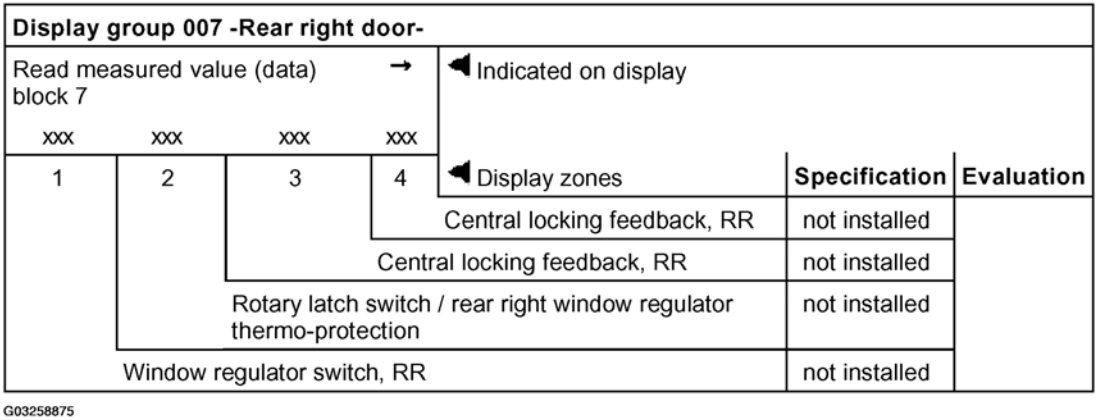
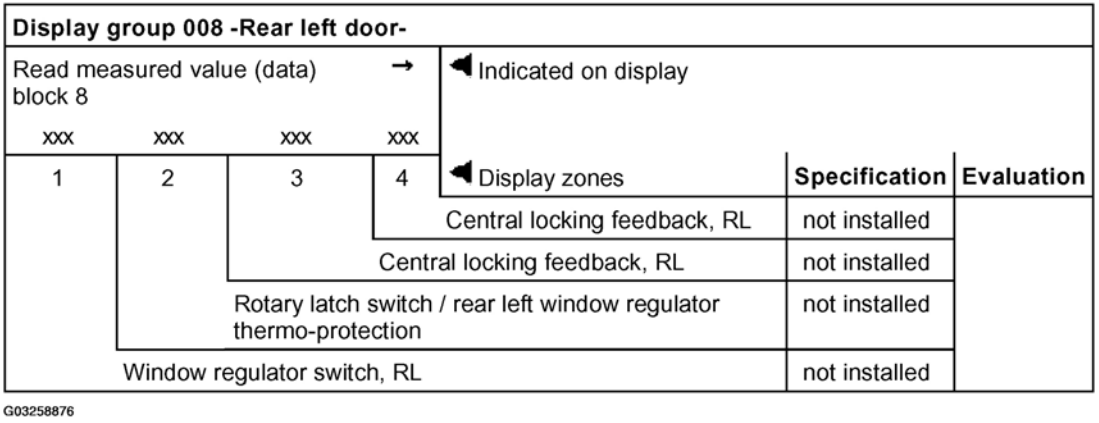


Fig. 75: Break Down Group Display 007 Chart - 2nd Generation Vehicles Up To 05.01

Courtesy of VOLKSWAGEN OF AMERICA, INC.

Break down of display content for display group number 008



Display group 008 -Rear left door-						
Read measured value (data) block 8 →				Indicated on display		
xxx	xxx	xxx	xxx			
1	2	3	4	Display zones	Specification	Evaluation
				Central locking feedback, RL	not installed	
				Central locking feedback, RL	not installed	
				Rotary latch switch / rear left window regulator thermo-protection	not installed	
				Window regulator switch, RL	not installed	

G03258876

Fig. 76: Break Down Group Display 008 Chart - 2nd Generation Vehicles Up To 05.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Break down of display content for display group number 009

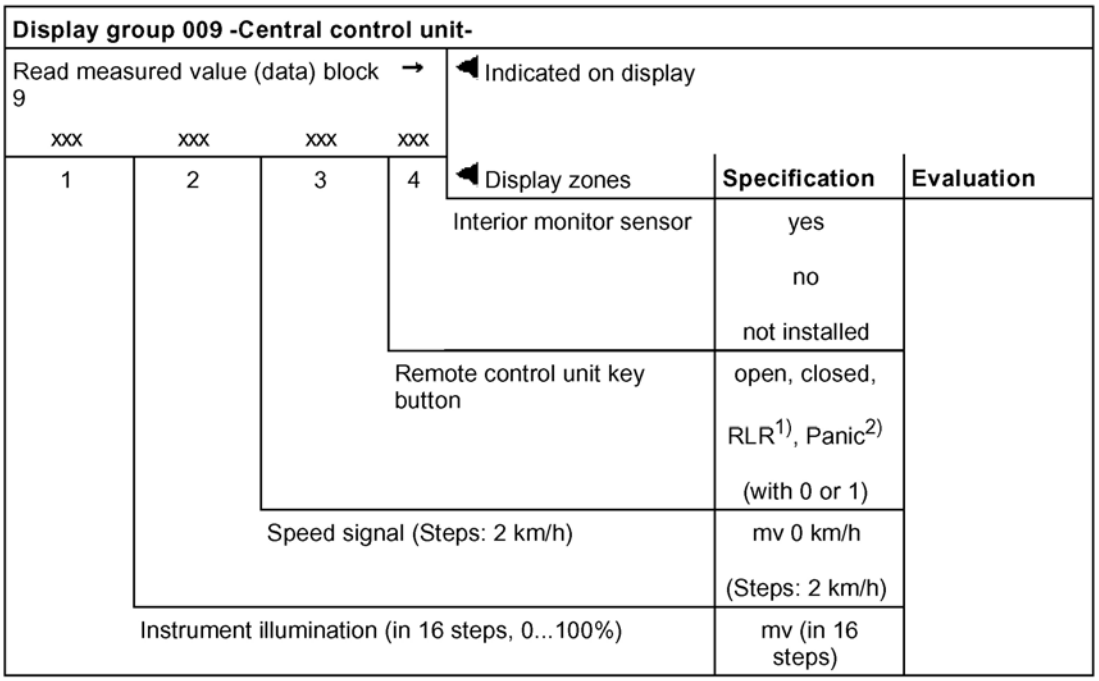


Fig. 77: Break Down Group Display 009 Chart - 2nd Generation Vehicles Up To 05.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 009

EVALUATING DISPLAY GROUP NUMBER 009 CHART - 2ND GENERATION VEHICLES UP TO 05.01

Display zone	Designation	Display contents	Corrective action
1	Instrument illumination	mv = 0...100% (in 16 steps)	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and install tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again • Adapt remote control unit again if necessary. (Function 10, Adaptation, see **RADIO FREQUENCY REMOTE**
2	Speed signal	mv = km/h (Steps: 2km/h)	
3	Remote control unit key button	open, closed, RLR(1) , Panic(2)	

		(with 0 or 1)	CONTROL, PROGRAMMING IGNITION KEYS, MATCHING (ADAPTATION))
4	Interior monitor sensor	yes no not installed	

(1) RLR= Rear Lid Remote Release.

(2) Only vehicles for USA, alarm system and turn signal lights are activated.

Break down of display content for display group number 010

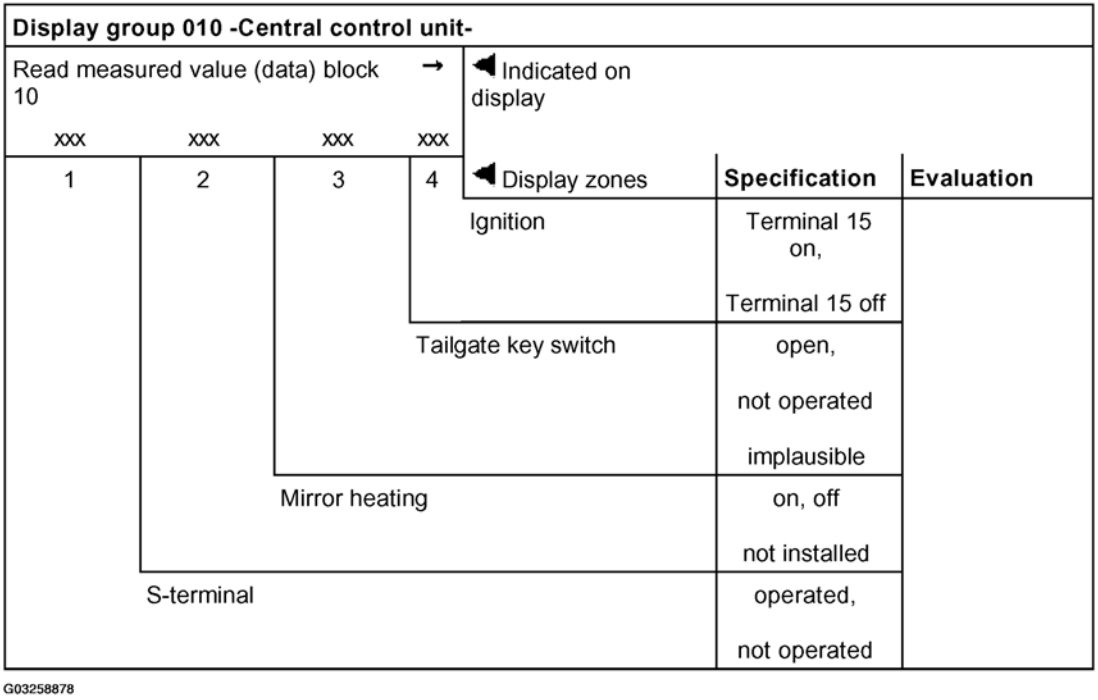


Fig. 78: Break Down Group Display 010 Chart - 2nd Generation Vehicles Up To 05.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 010

EVALUATING DISPLAY GROUP NUMBER 010 CHART - 2ND GENERATION VEHICLES UP TO 05.01

Display zone	Designation	Display contents	Corrective action
1	S-terminal	operated not operated	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and install tightly together while
2	Mirror heating	on, off	

		not installed	simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again
3	Tailgate key switch	open not operated implausible	
4	Ignition	Terminal 15 on Terminal 15 off	

Break down of display content for display group number 011

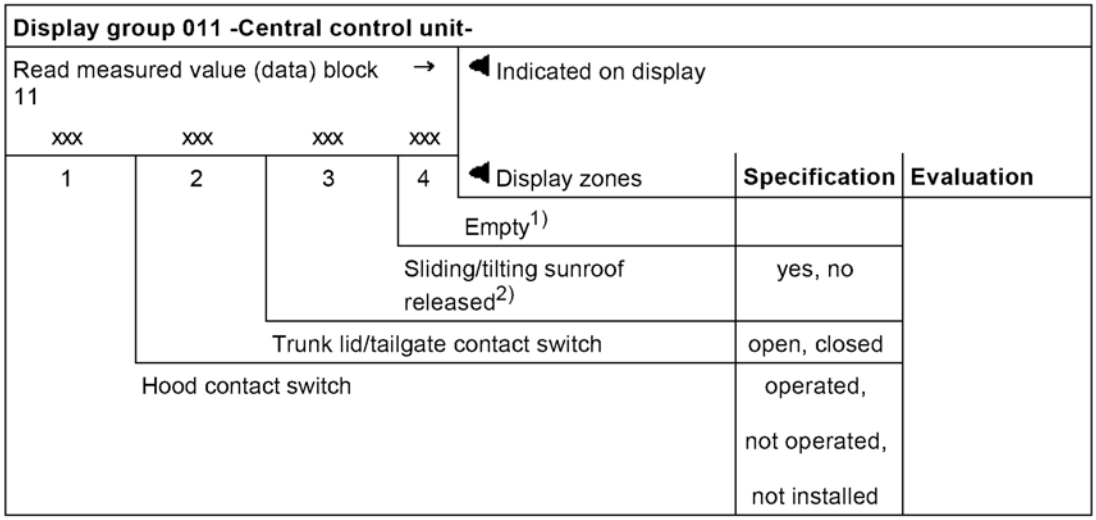


Fig. 79: Break Down Group Display 011 Chart - 2nd Generation Vehicles Up To 05.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 011

EVALUATING DISPLAY GROUP NUMBER 011 CHART - 2ND GENERATION VEHICLES UP TO 05.01

Display zone	Designation	Display contents	Corrective action
1	Hood contact switch	operated not operated not	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and install tightly together while

		installed	simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again
2	Trunk lid/tailgate contact switch	open closed	
3	Sliding/tilting sunroof released	yes no	

Break down of display content for display group number 012

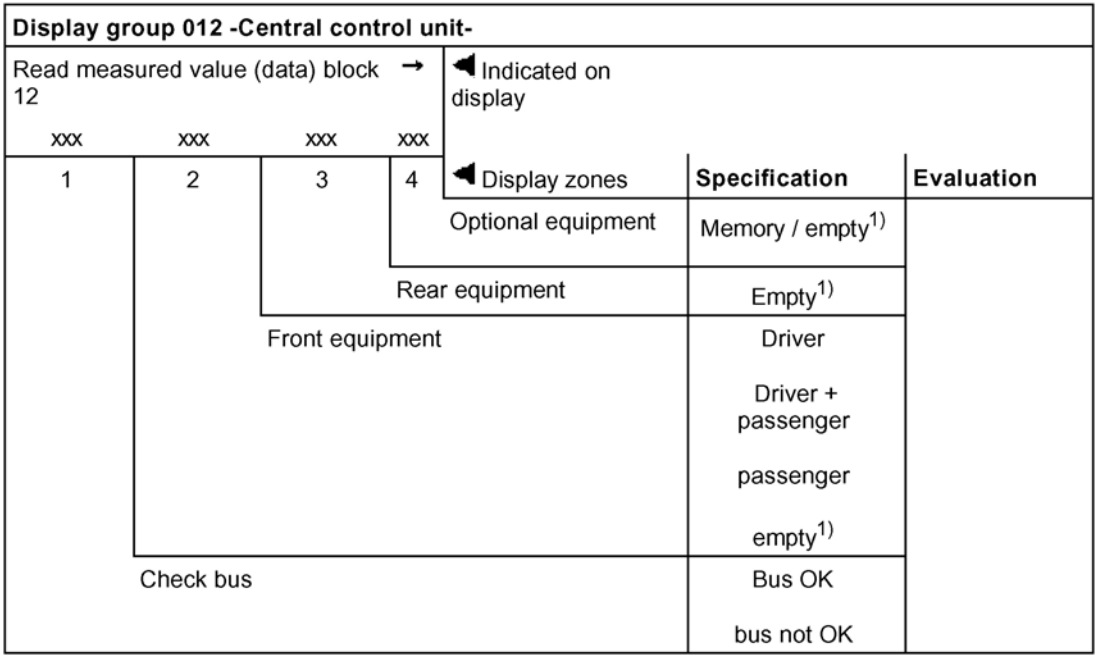


Fig. 80: Break Down Group Display 012 Chart - 2nd Generation Vehicles Up To 05.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 012

EVALUATING DISPLAY GROUP NUMBER 012 CHART - 2ND GENERATION VEHICLES UP TO 05.01

Display zone	Designation	Display contents	Corrective action
1	Check bus	Bus OK bus not OK	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and install tightly together while

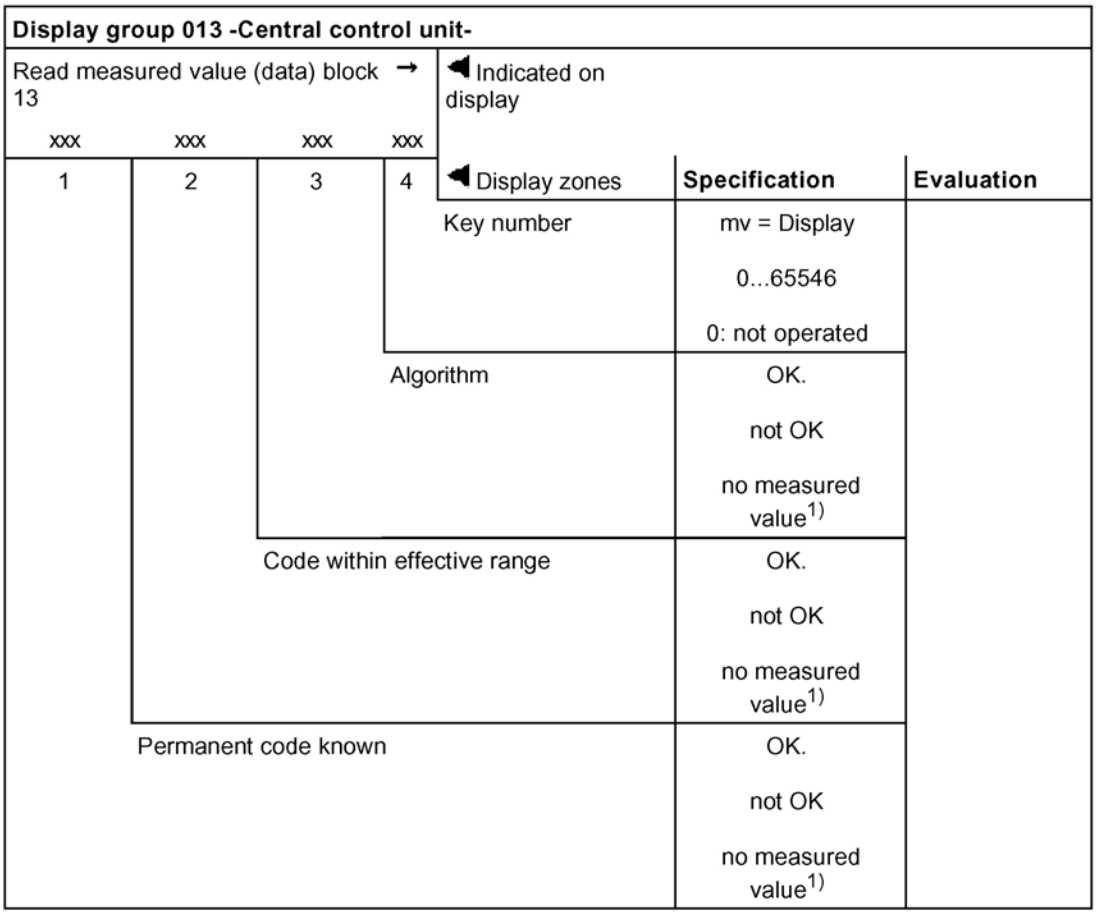
			simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • If no changes occur, separate all door main connectors and reconnect one after the other again • Observe measured value block • If display changes, replace relevant control unit • Erase DTC memory • Perform functional check • Check DTC memory again
2	Front equipment	Driver Driver + passenger passenger empty(1)	These display zones simply show the relevant vehicle equipment • For example, checks can be made to see which control units are actively connected to the system and which are not
3	Rear equipment	Empty(1)	
4	Optional equipment	Memory empty(1)	
(1) Empty means in this case: Display zone is blank.			

Example:

With the malfunction "Door control unit, drivers side; No answer" one can see directly if the door control unit is connected.

Will be indicated in display zone 2 here as "passenger" only for example.

Break down of display content for display group number 013



1) If the remote control key is operated several times the third display - no measured value - will change to "OK".

G03258881

Fig. 81: Break Down Group Display 013 Chart - 2nd Generation Vehicles Up To 05.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 013

EVALUATING DISPLAY GROUP NUMBER 013 CHART - 2ND GENERATION VEHICLES UP To 05.01

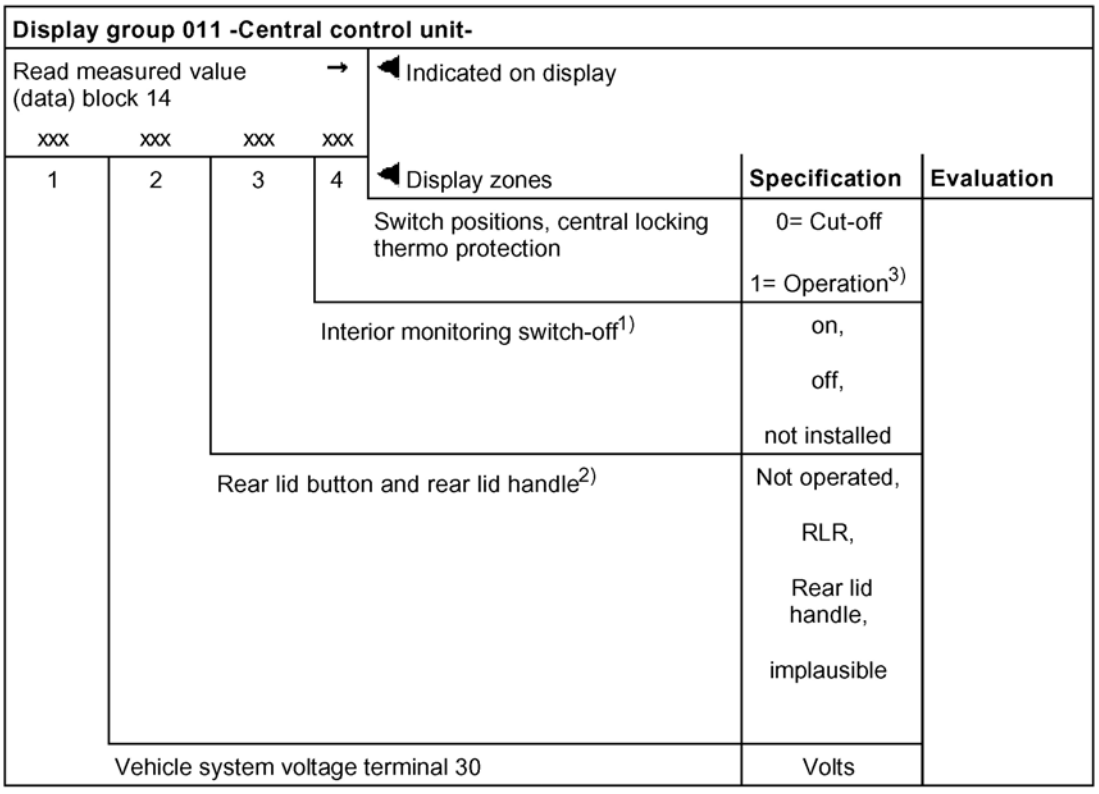
Display zone	Designation	Display contents	Corrective action
1	Permanent code known	OK. not OK no measured value(1) (key not operated at this moment)	For not OK: • Key code is outside the range of the receiver. Adapt radio wave control unit again via function 10 (Adaptation), see **RADIO FREQUENCY REMOTE CONTROL, PROGRAMMING IGNITION KEYS, MATCHING (ADAPTATION)**)
2	Code within effective range		

3	Algorithm		For no measurement: • Battery in key is discharged (empty), change battery • Radio wave control unit is faulty, replace key unit
4	Key number	mv = 1...4(2)	When operating a "learned" radio wave remote control key, as shown here, indicates in which position the key was learned/taught. If the tester displays "0" even when the remote button is pressed, this key must be "re-synchronised" using adaption (10).

(1) If the remote control key is operated several times the tired display - no measured value - will change to "OK".

(2) A max. of 4 remote controls can be "learned".

Break down of display content for display group number 014



1) Interior monitoring switch-off

2) Rear lid remote opening button, Rear lid handle

3) Sequence for display: Driver's side (DS), front passenger's side (FPS), rear left (RL), rear right (RR), rear lid (rear)

G03258882

Fig. 82: Break Down Group Display 014 Chart - 2nd Generation Vehicles Up To 05.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 014

EVALUATING DISPLAY GROUP NUMBER 014 CHART - 2ND GENERATION VEHICLES UP TO 05.01

Display zone	Designation	Display contents	Corrective action
1	Vehicle system voltage terminal 30	Volts	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and install tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace
2	Rear lid button and rear lid handle(1)	Not operated RLR, Rear lid handle, implausible	

3	Interior monitoring switch-off(2)	on, off, not installed	relevant component • Erase DTC memory • Perform functional check • Check DTC memory again
4	Switch position, central locking thermo protection	11 11 1 0= Cut-off 1= Operation (3)	

(1) Rear lid remote opening button, Rear lid handle.

(2) Interior monitoring switch-off.

(3) Sequence for display: Driver's side (DS), front passenger's side (FPS), rear left (RL), rear right (RR), rear lid (rear).

Break down of display content for display group number 015

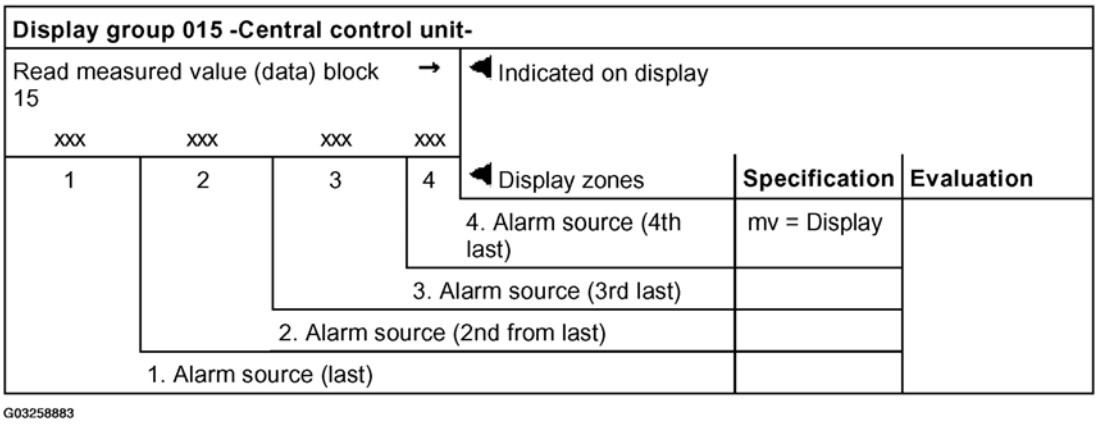


Fig. 83: Break Down Group Display 015 Chart - 2nd Generation Vehicles Up To 05.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Break down of display content for display group number 015

BREAK DOWN GROUP DISPLAY 015 CHART - 2ND GENERATION VEHICLES UP TO 05.01

Display zone	Designation	Display contents	Corrective action
1	Alarm source (last)	Display see table below	Only the last 4 ATA () activations are shown! For example "64" = Hood contact switch (See **POSSIBLE SOURCES OF ALARM** for possible sources of alarm.)
2	Alarm source (2nd from last)		
3	Alarm source (3rd last)		
4	Alarm source (4th last)		

(1) Anti-theft alarm system

POSSIBLE SOURCES OF ALARM

Possible sources of alarm	Display
Trunk lid/tailgate contact switch	1
Front passenger rotary latch switch	8
Ignition	16
Immobilizer	17
Interruption intelligent horn	18
Interior monitoring	32
Hood contact switch, radio	64
Driver's rotary latch switch	128
No alarm	255

Break down of display content for display group number 016

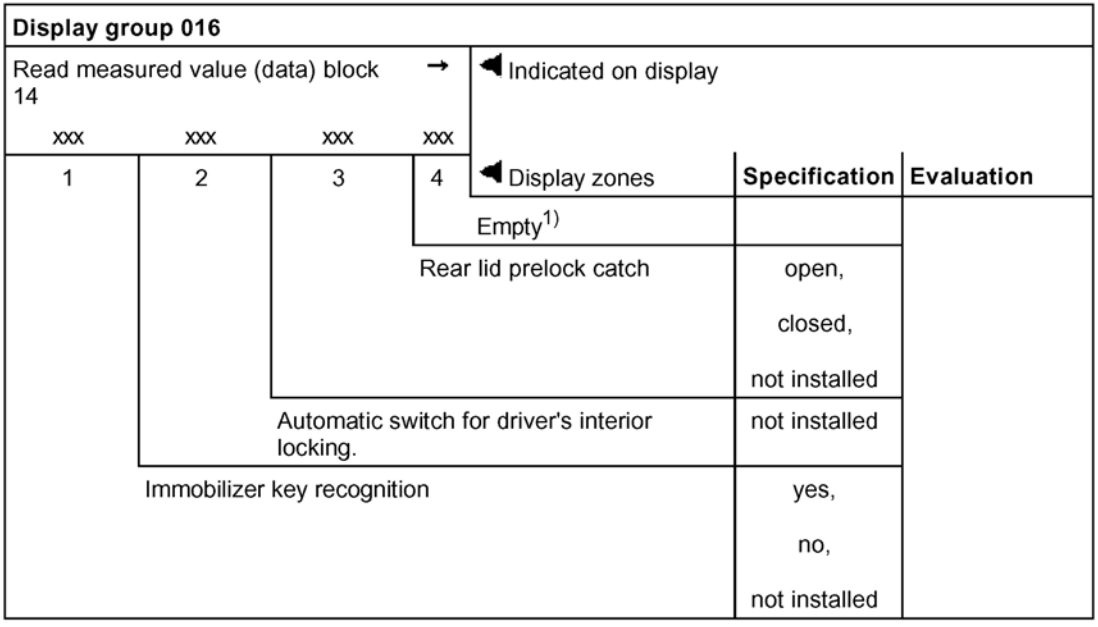


Fig. 84: Break Down Group Display 016 Chart - 2nd Generation Vehicles Up To 05.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 016

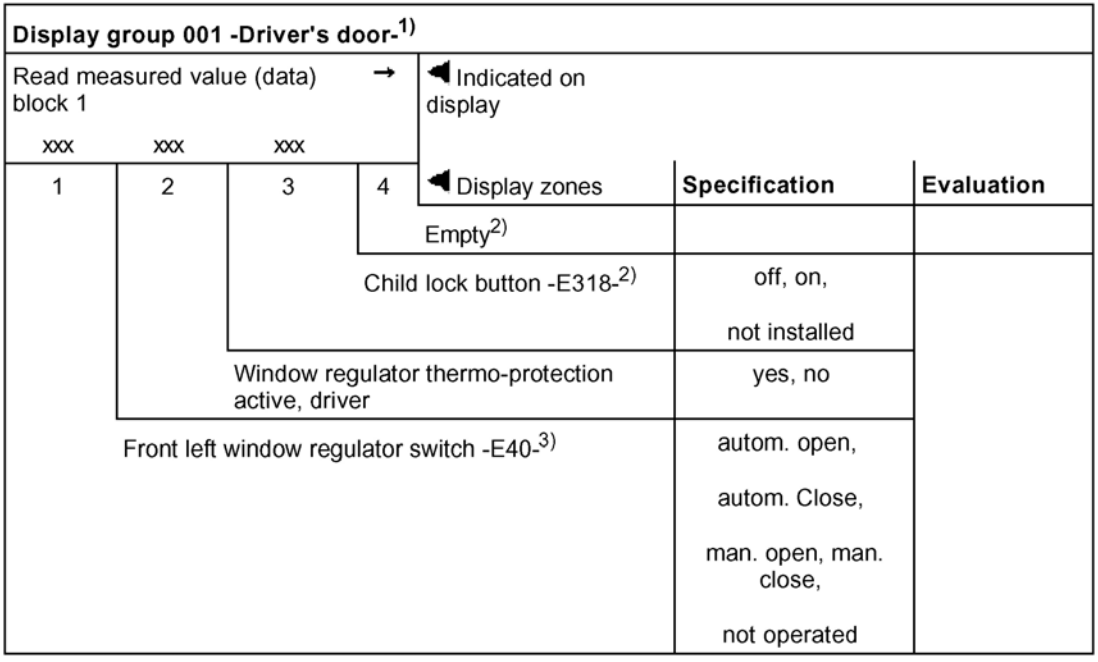
EVALUATING DISPLAY GROUP NUMBER 016 CHART - 2ND GENERATION VEHICLES UP TO 05.01

Display zone	Designation	Display contents	Corrective action

1	Child safety switch	yes, no, not installed	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and install tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again
2	Automatic switch for driver's interior locking.	not installed	
3	Rear lid prelock catch	open, closed, not installed	

DISPLAY GROUP OVERVIEW COMFORT SYSTEM 3RD GENERATION VEHICLES FROM 06.01

Break down of display content for display group number 001



1) when CAN malfunction "Control unit does not respond"

1) Empty means in this case: Display zone is blank

2) Part of door operating unit

G03258885

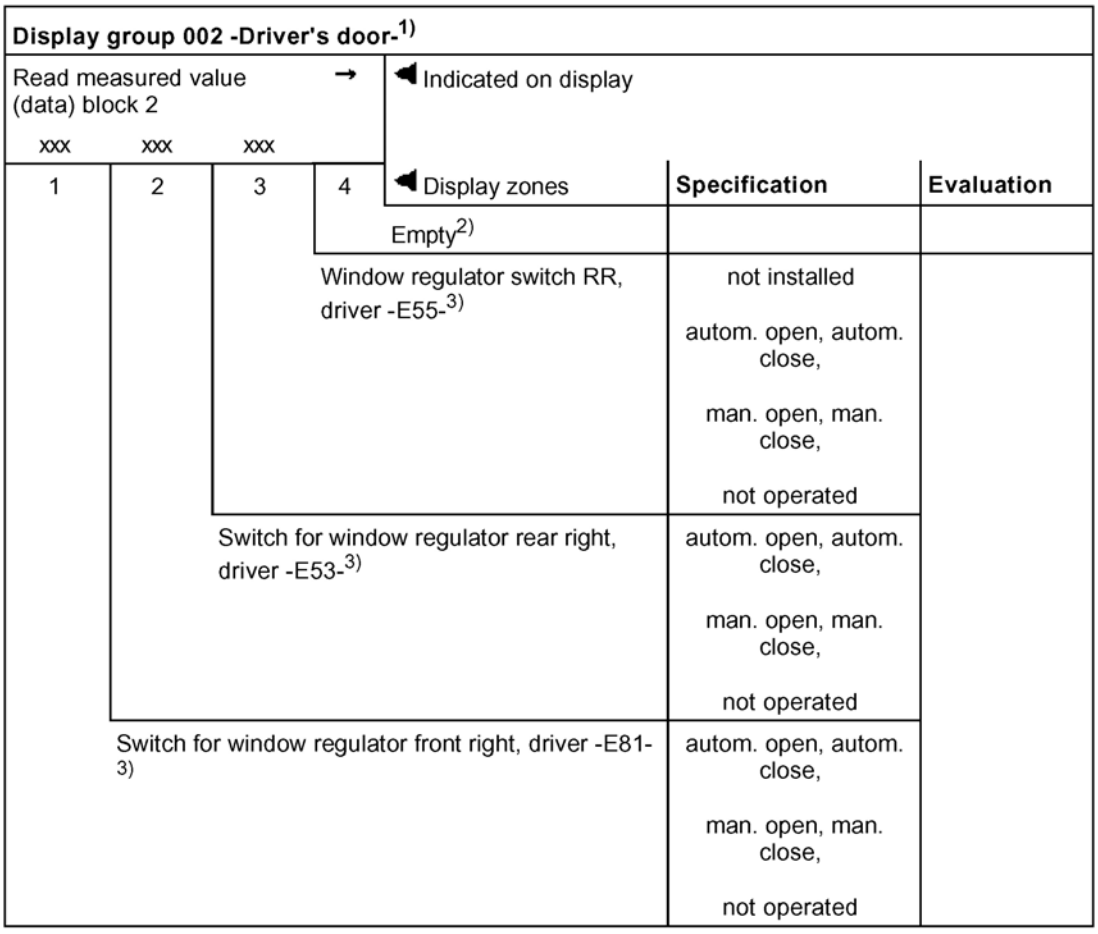
Fig. 85: Break Down Group Display 001 - 3rd Generation Vehicles From 06.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 001

EVALUATING DISPLAY GROUP NUMBER 001 CHART - 3RD GENERATION VEHICLES FROM 06.01

Display zone	Designation	Display contents	Corrective action
1	Front left window regulator switch -E40-1)	autom. open, autom. close, man. open, man. close, not operated, implausible	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and install tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Perform functional check • Check DTC memory again
2	Window regulator thermo-protection active, driver	yes, no	
3	Child lock button -E318-(1)	off, on, not installed	
(1) Part of door operating unit			

Break down of display content for display group number 002



1) when CAN malfunction "Control unit does not respond"

2) Empty means in this case: Display zone is blank

3) Part of door operating unit

G03258886

Fig. 86: Break Down Group Display 002 Chart - 3rd Generation Vehicles From 06.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 002

EVALUATING DISPLAY GROUP NUMBER 002 CHART - 3RD GENERATION VEHICLES FROM 06.01

Display zone	Designation	Display contents	Corrective action
1	Switch for window regulator front right, driver -E81-(1)	autom. open, autom. close, man. open,	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and install tightly

		man. close, not operated, implausible	together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Perform functional check • Check DTC memory again
2	Switch for window regulator rear right, driver -E53-(1)	not installed, autom. open, autom. close, man. open, man. close, not operated, implausible	
3	Window regulator switch RR, driver -E55-(1)	not installed, autom. open, autom. close, man. open, man. close, not operated, implausible	
(1) Part of door operating unit			

Break down of display content for display group number 003

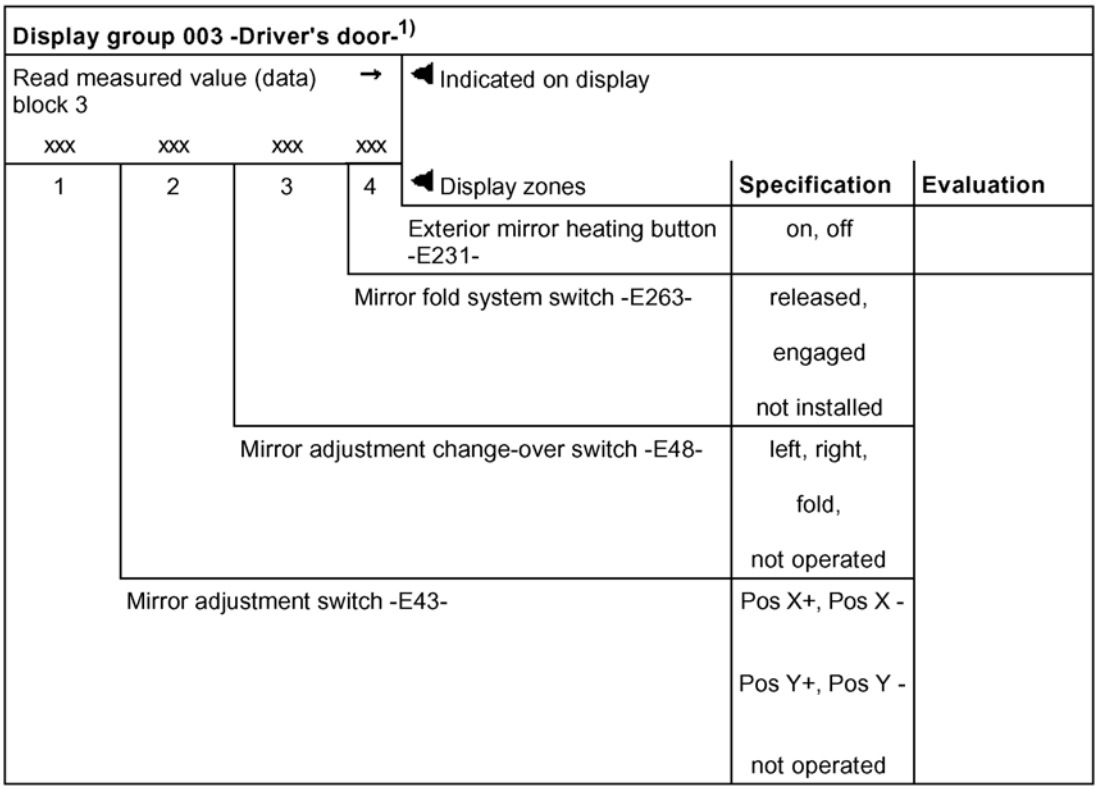

Display group 003 -Driver's door-1)
Read measured value (data) block 3
Indicated on display
xxx xxx xxx xxx
1 2 3 4
Display zones
Specification
Evaluation
Exterior mirror heating button -E231-
on, off
Mirror fold system switch -E263-
released, engaged not installed
Mirror adjustment change-over switch -E48-
left, right, fold, not operated
Mirror adjustment switch -E43-
Pos X+, Pos X - Pos Y+, Pos Y - not operated
1) when CAN malfunction "Control unit does not respond"
G03258887

Fig. 87: Break Down Group Display 003 Chart - 3rd Generation Vehicles From 06.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

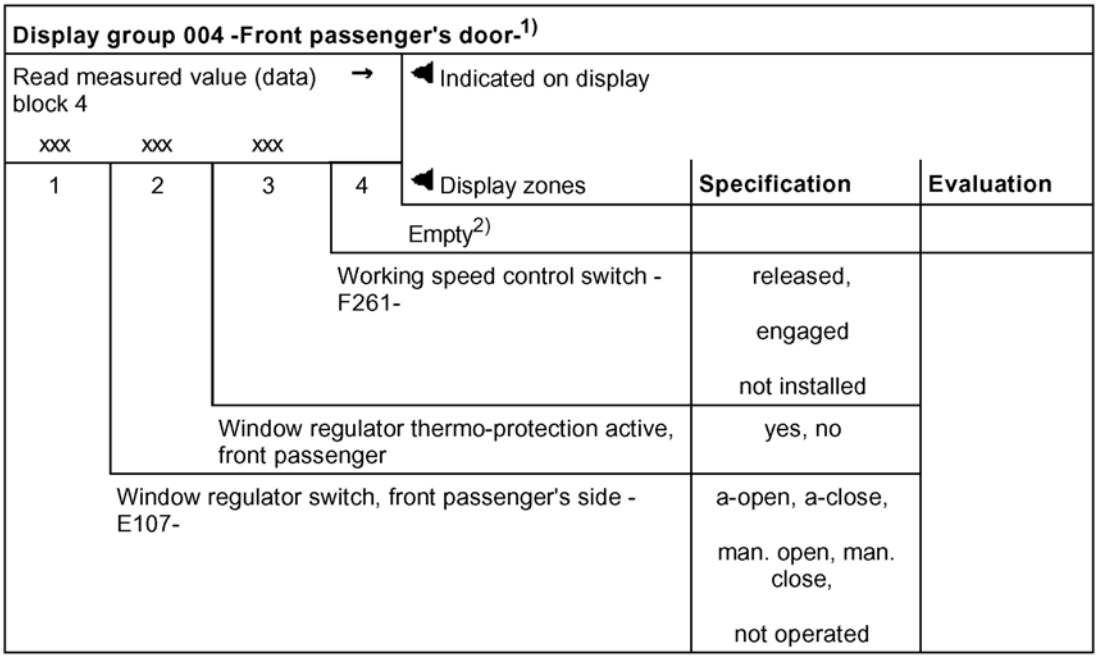
Evaluating display group number 003

EVALUATING DISPLAY GROUP NUMBER 003 CHART - 3RD GENERATION VEHICLES FROM 06.01

Display zone	Designation	Display contents	Corrective action
1	Mirror adjustment switch -E43-	Pos X+, Pos X-, Pos Y+, Pos Y-, not operated, implausible	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and install tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again
2	Mirror adjustment change-over switch -E48-	left, right fold, not operated, implausible	
3	Mirror fold system	released,	

	switch -E263-	engaged not installed	
4	Exterior mirror heating button -E231-	on, off	

Break down of display content for display group number 004



1) when CAN malfunction "Control unit does not respond"

2) Empty means in this case: Display zone is blank

G03258888

Fig. 88: Break Down Group Display 004 Chart - 3rd Generation Vehicles From 06.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

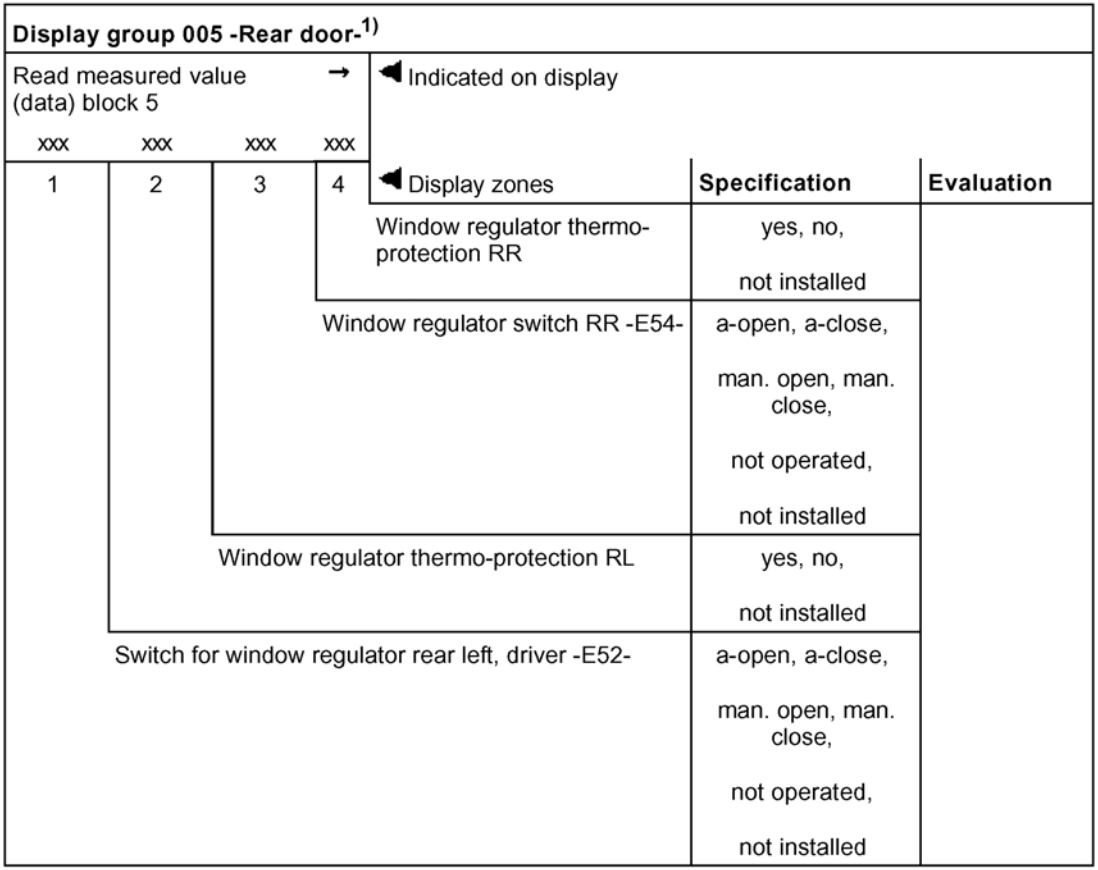
Evaluating display group number 004

EVALUATING DISPLAY GROUP NUMBER 004 CHART - 3RD GENERATION VEHICLES FROM 06.01

Display zone	Designation	Display contents	Corrective action
1	Window regulator switch, front passenger's side -E107-	a-open, a-close, man. open, man. close, not operated,	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and install tightly together while simultaneously

		implausible	observing display
2	Window regulator thermo-protection active, front passenger	yes, no	• If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again
3	Working speed control switch -F261-	released, engaged not installed	

Break down of display content for display group number 005


Display group 005 -Rear door-1)
Read measured value (data) block 5
Indicated on display
xxx xxx xxx xxx
1 2 3 4
Display zones
Specification
Evaluation
Window regulator thermo-protection RR
yes, no, not installed
Window regulator switch RR -E54-
a-open, a-close, man. open, man. close, not operated, not installed
Window regulator thermo-protection RL
yes, no, not installed
Switch for window regulator rear left, driver -E52-
a-open, a-close, man. open, man. close, not operated, not installed

1) when CAN malfunction "Control unit does not respond"

G03258889

Fig. 89: Break Down Group Display 005 Chart - 3rd Generation Vehicles From 06.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 005

EVALUATING DISPLAY GROUP NUMBER 005 CHART - 3RD GENERATION VEHICLES FROM 06.01

Display zone	Designation	Display contents	Corrective action
1	Switch for window regulator rear left, driver -E52-	a-open, a-close, man. open, man. close, not operated, not installed, implausible	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and install tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again
2	Window regulator thermo-protection RL	yes, no, not installed	
3	Window regulator switch RR -E54-	a-open, a-close, man. open, man. close, not operated, not installed, implausible	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and install tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again
4	Window regulator thermo- protection RR	yes, no, not installed	

Break down of display content for display group number 006

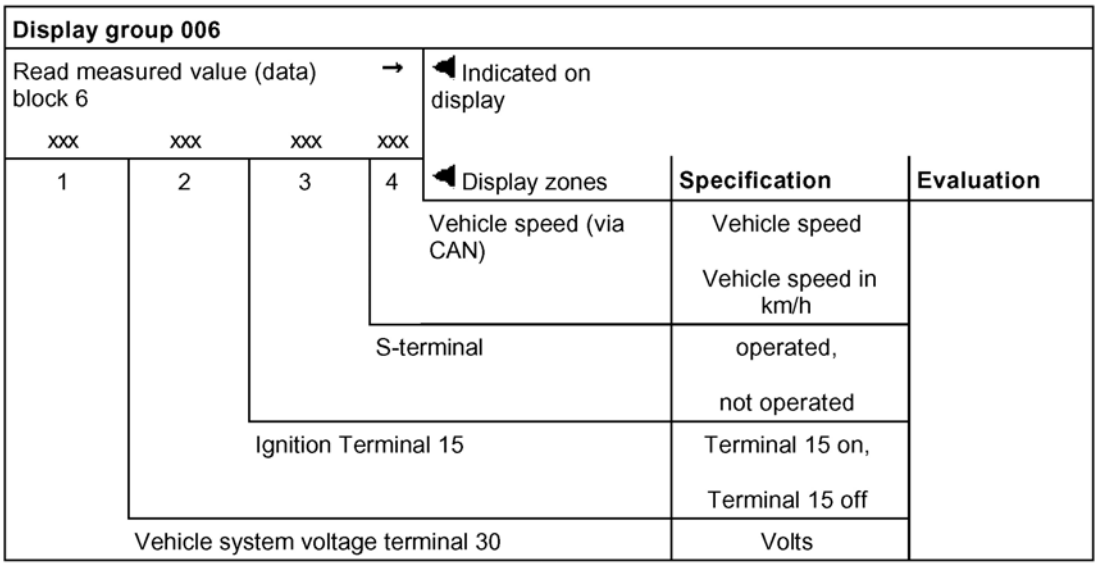


Fig. 90: Break Down Group Display 006 Chart - 3rd Generation Vehicles From 06.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 006

EVALUATING DISPLAY GROUP NUMBER 006 CHART - 3RD GENERATION VEHICLES FROM 06.01

Display zone	Designation	Display contents	Corrective action
1	Vehicle system voltage terminal 30	Volts	
2	Ignition Terminal 15	Terminal 15 on, terminal 15 off, no communication	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and install tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again
3	S-terminal	operated, not operated, no communication	
4	Vehicle speed (via CAN)	Vehicle speed in km/h, no communication no measuring value	

Break down of display content for display group number 007

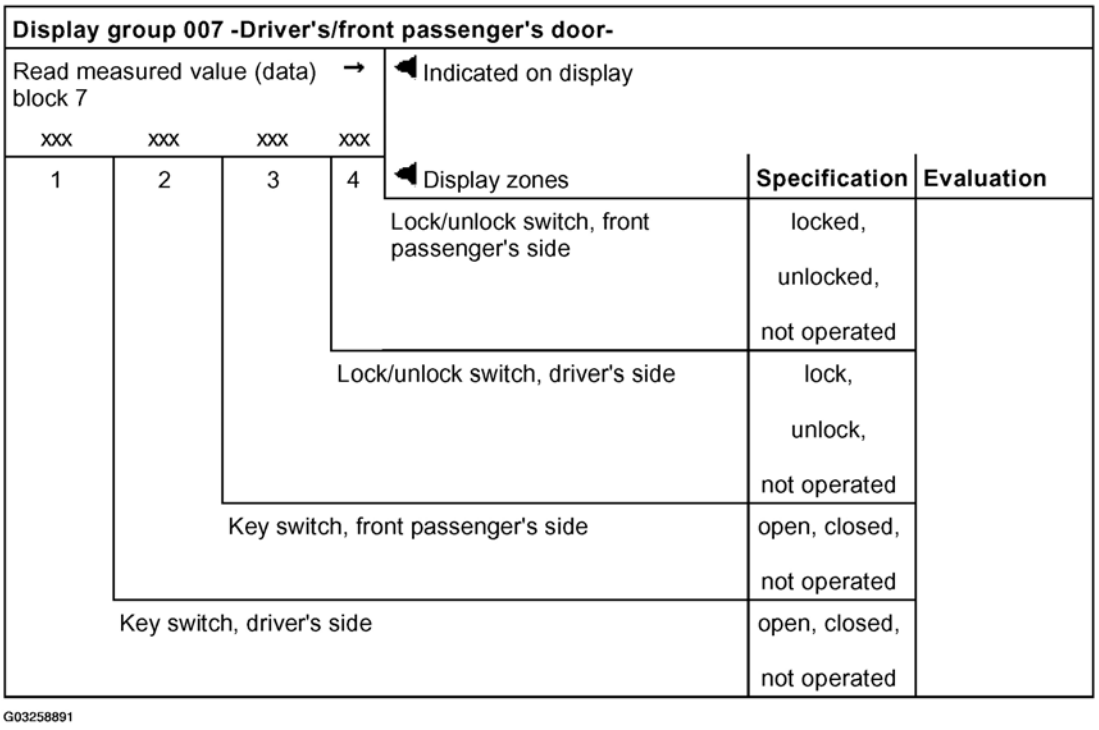


Fig. 91: Break Down Group Display 007 Chart - 3rd Generation Vehicles From 06.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 007

EVALUATING DISPLAY GROUP NUMBER 007 CHART - 3RD GENERATION VEHICLES FROM 06.01

Display zone	Designation	Display contents	Corrective action
1	Key switch, driver's side	open, closed, not operated	
2	Key switch, front passenger's side	open, closed, not operated	
3	Lock/unlock switch, driver's side	lock, unlock, not operated, implausible	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and install tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check
4	Key switch, driver's side	locked, unlocked, not operated, implausible	

			• Check DTC memory again

Break down of display content for display group number 008

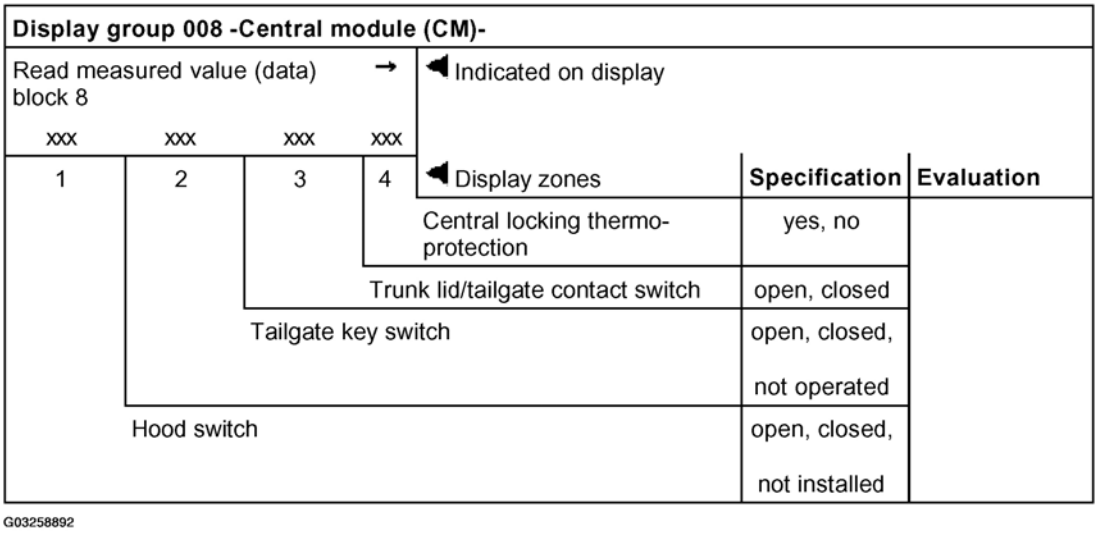


Fig. 92: Break Down Group Display 008 Chart - 3rd Generation Vehicles From 06.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 008

EVALUATING DISPLAY GROUP NUMBER 008 CHART - 3RD GENERATION VEHICLES FROM 06.01

Display zone	Designation	Display contents	Corrective action
1	Hood switch	open, closed, not installed, no communication	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and install tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again
2	Trunk lid/tailgate contact switch	open, closed, not operated, implausible	
3	Trunk lid/tailgate contact switch	open, closed, no communication	
4	Central locking thermo-protection	yes, no	

Break down of display content for display group number 009

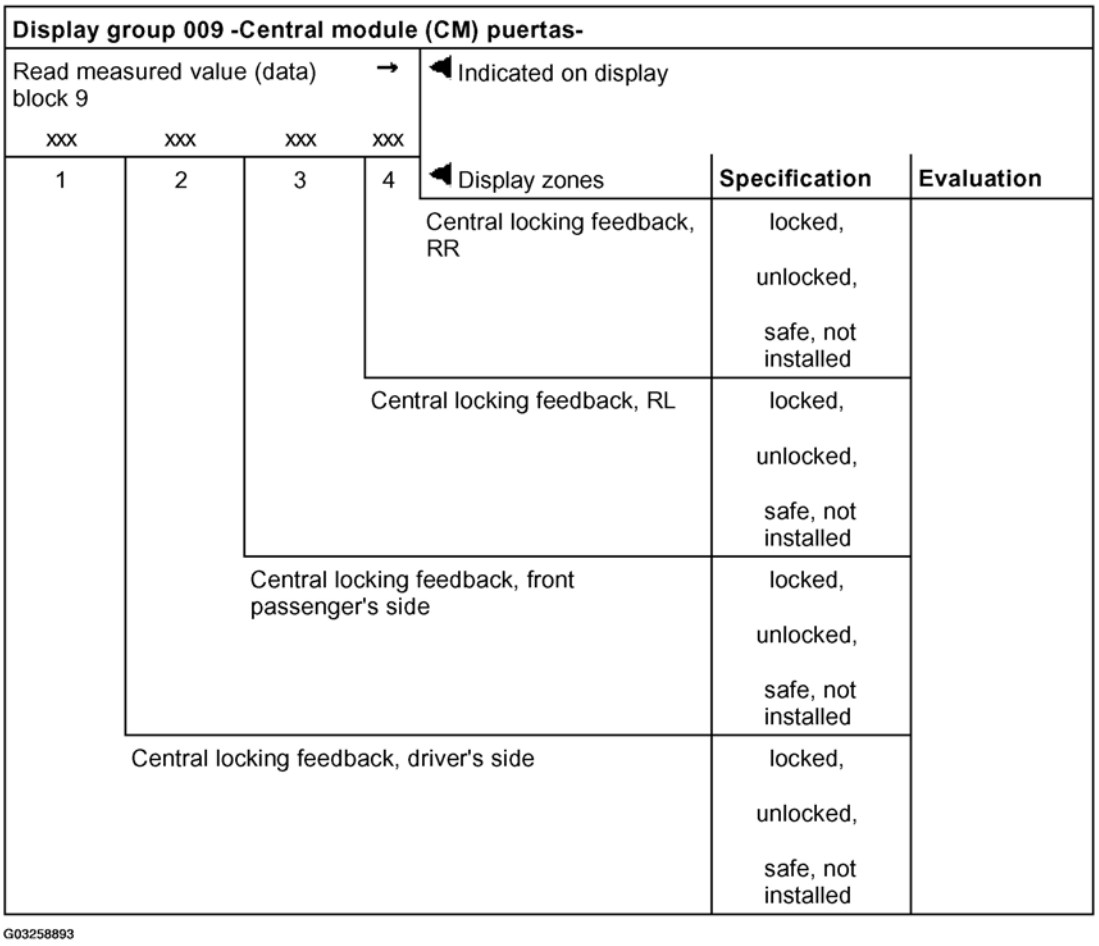


Fig. 93: Break Down Group Display 009 Chart - 3rd Generation Vehicles From 06.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 009

EVALUATING DISPLAY GROUP NUMBER 009 CHART - 3RD GENERATION VEHICLES FROM 06.01

Display zone	Designation	Display contents	Corrective action
1	Central locking feedback, driver's side	locked, unlocked, safe, not installed	
2	Central locking feedback, front passenger's side	locked, unlocked, safe, not installed	
3	Central locking feedback, RL	locked, unlocked, safe, not installed	
4	Central locking feedback, RR	locked,	

		unlocked, safe, not installed	

Break down of display content for display group number 010

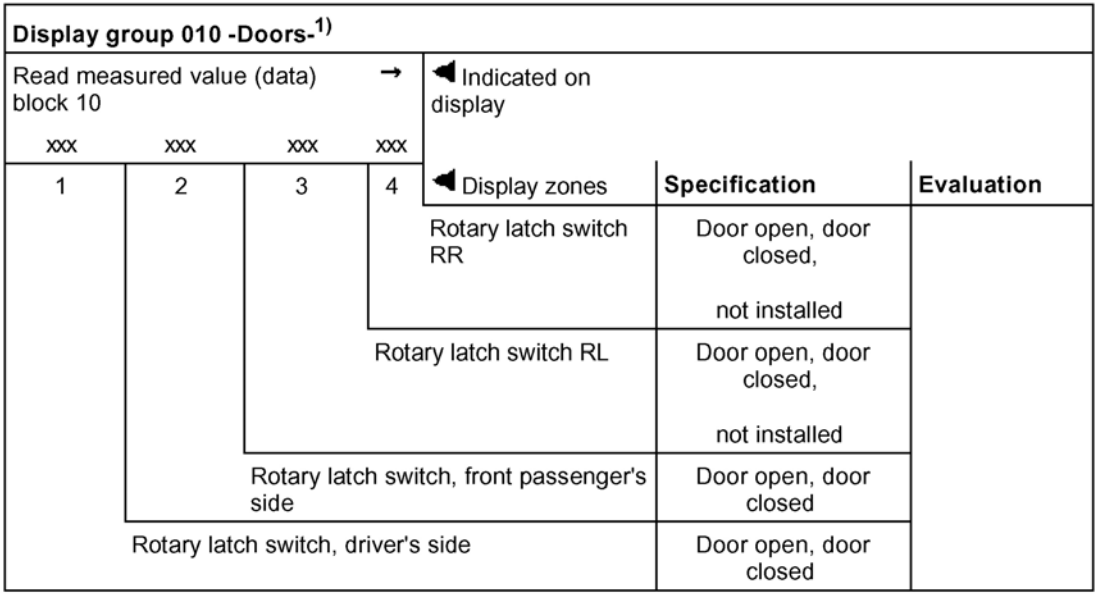


Fig. 94: Break Down Group Display 010 Chart - 3rd Generation Vehicles From 06.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 010

EVALUATING DISPLAY GROUP NUMBER 010 CHART - 3RD GENERATION VEHICLES FROM 06.01

Display zone	Designation	Display contents	Corrective action
1	Rotary latch switch, driver's side	Door open, door closed	
2	Rotary latch switch, front passenger's side	Door open, door closed	
3	Rotary latch switch RL	Door open, door closed, not installed	
4	Rotary latch switch RR	Door open, door closed, not installed	

Break down of display content for display group number 011

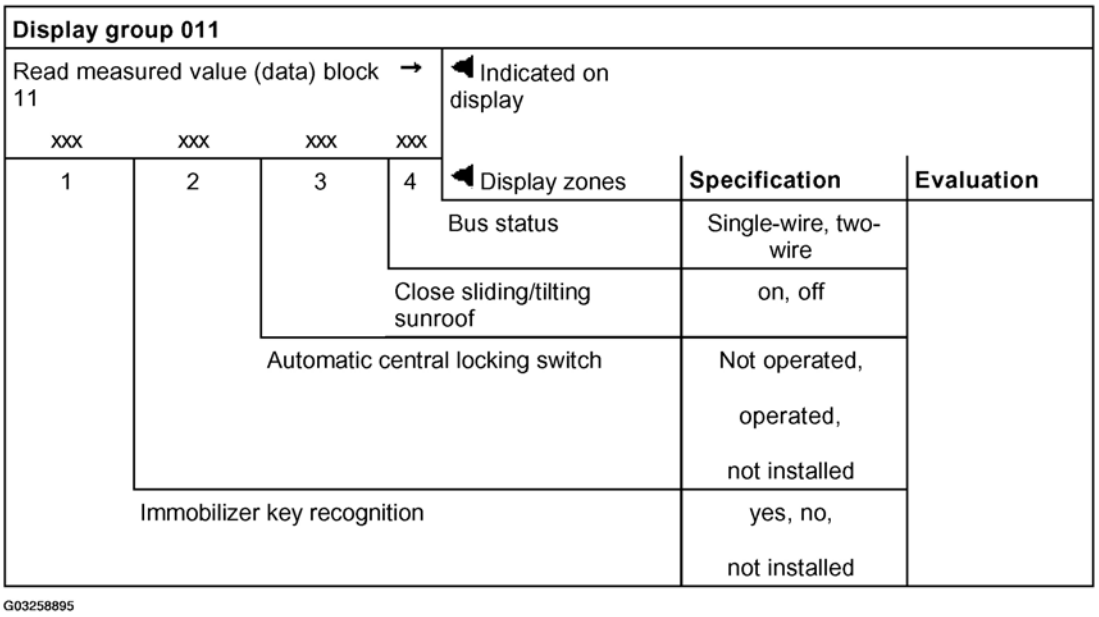


Fig. 95: Break Down Group Display 011 Chart - 3rd Generation Vehicles From 06.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 011

EVALUATING DISPLAY GROUP NUMBER 011 CHART - 3RD GENERATION VEHICLES FROM 06.01

Display zone	Designation	Display contents	Corrective action
1	Immobilizer key recognition	yes, no, not installed, no communication	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and install tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again
2	Automatic central locking switch	Not operated, operated, not installed	
3	Close sliding/tilting sunroof	on, off	

4	Bus status	Single-wire, two-wire	

Break down of display content for display group number 012

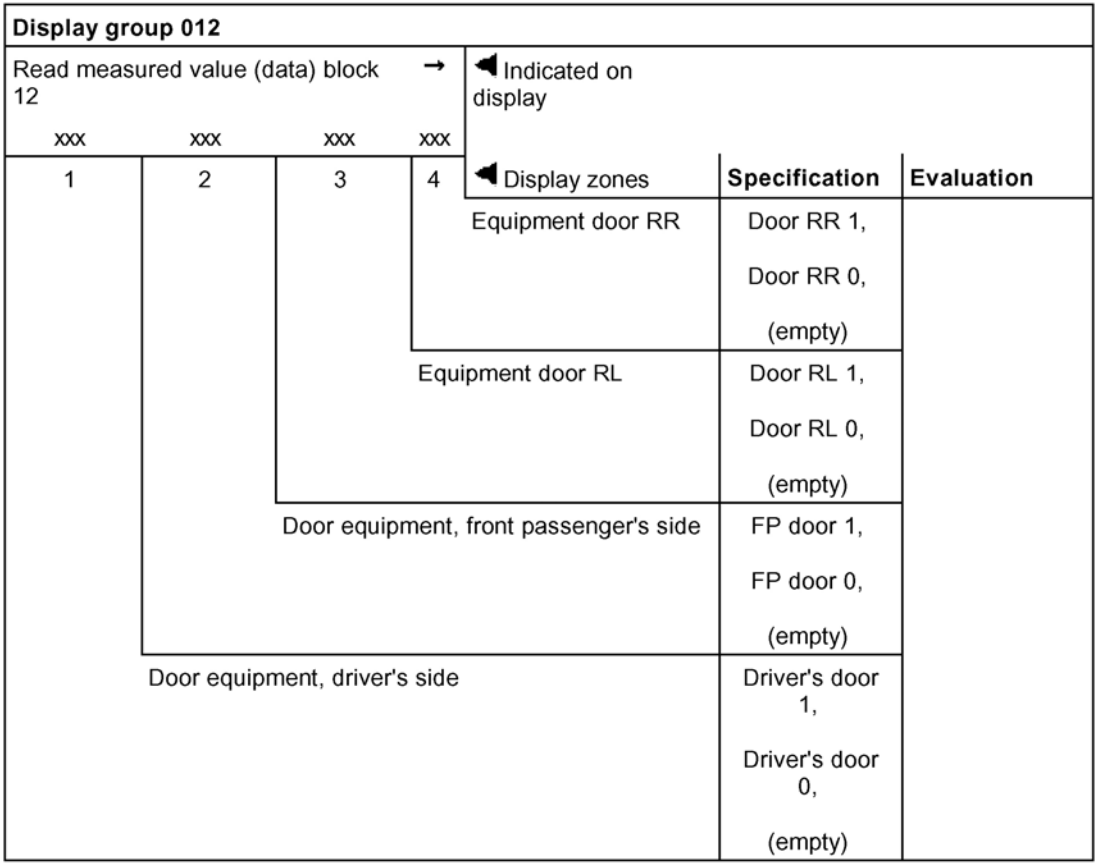


Fig. 96: Break Down Group Display 012 Chart - 3rd Generation Vehicles From 06.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 012

EVALUATING DISPLAY GROUP NUMBER 012 CHART - 3RD GENERATION VEHICLES FROM 06.01

Display zone	Designation	Display contents	Corrective action
1	Door equipment, driver's side	Driver's door 1, Driver's door 0, (empty)	These display zones simply show the relevant vehicle equipment • For example, checks can be made to see which control units are actively connected to the system

2	Door equipment, front passenger's side	FP door 1, FP door 0, (empty)	and which are not connected.
3	Equipment door RL	Door RL 1, Door RL 0, (empty)	
4	Equipment door RR	Door RR 1, Door RR 0, (empty)	

Break down of display content for display group number 013

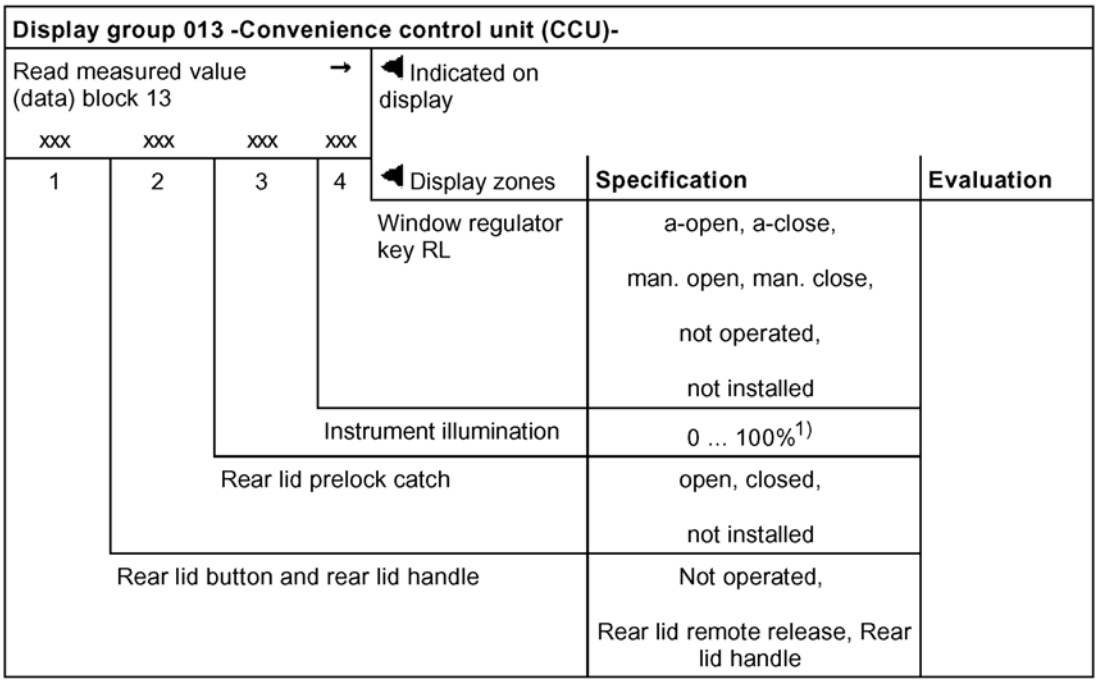


Fig. 97: Break Down Group Display 013 Chart - 3rd Generation Vehicles From 06.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

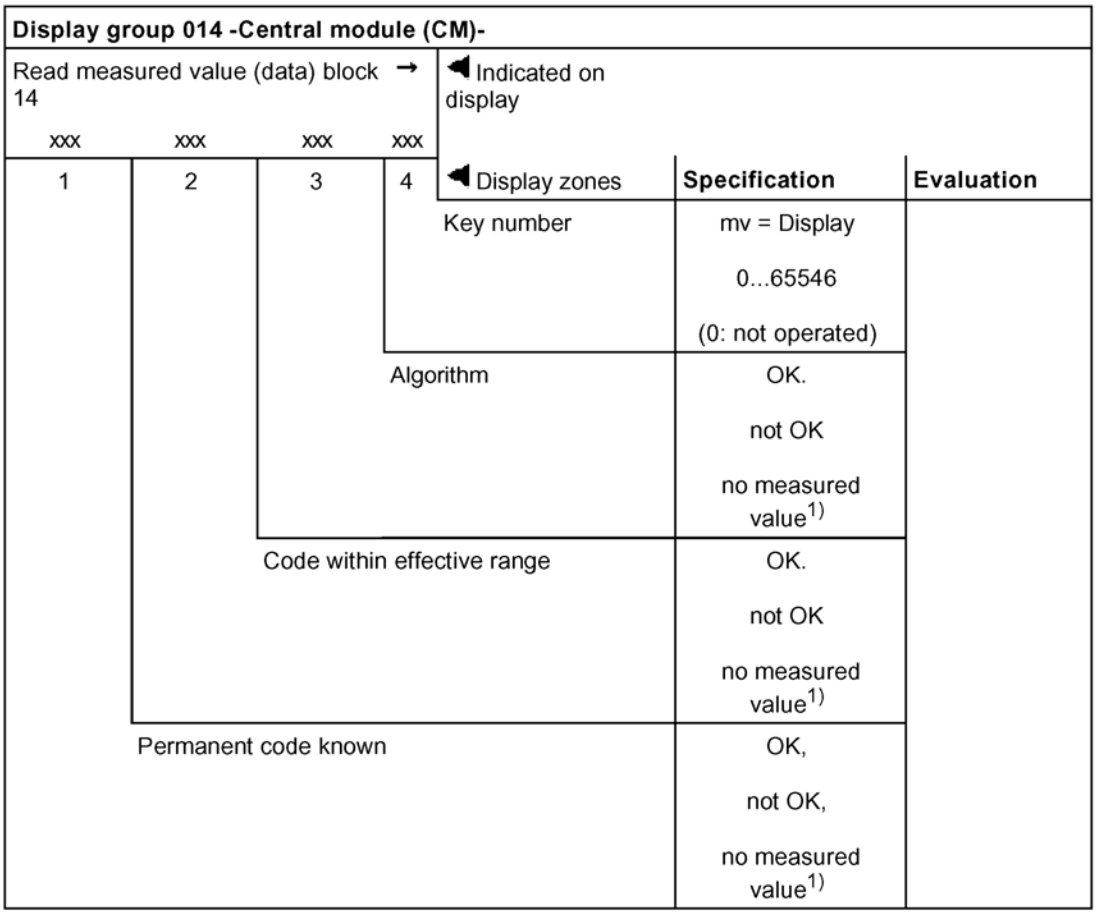
Evaluating display group number 013

EVALUATING DISPLAY GROUP NUMBER 013 CHART - 3RD GENERATION VEHICLES FROM 06.01

Display zone	Designation	Display contents	Corrective action
1	Rear lid button and rear lid	Not operated, Rear lid remote	• Visual check of wiring

	handle	release, Rear lid handle, implausible	• Check that connections of relevant current circuit are correctly connected and install tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again
2	Rear lid prelock catch	open, closed, not installed	
3	Instrument illumination	0 ... 100%(1)	
4	Window regulator key RL	a-open, a-close, man. open, man. close, not operated, not installed implausible	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and install tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again
(1) in 16 steps			

Break down of display content for display group number 014



1) If the remote control key is operated several times the third display - no measured value - will change to "OK".

G03258898

Fig. 98: Break Down Group Display 014 Chart - 3rd Generation Vehicles From 06.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 014

EVALUATING DISPLAY GROUP NUMBER 014 CHART - 3RD GENERATION VEHICLES FROM 06.01

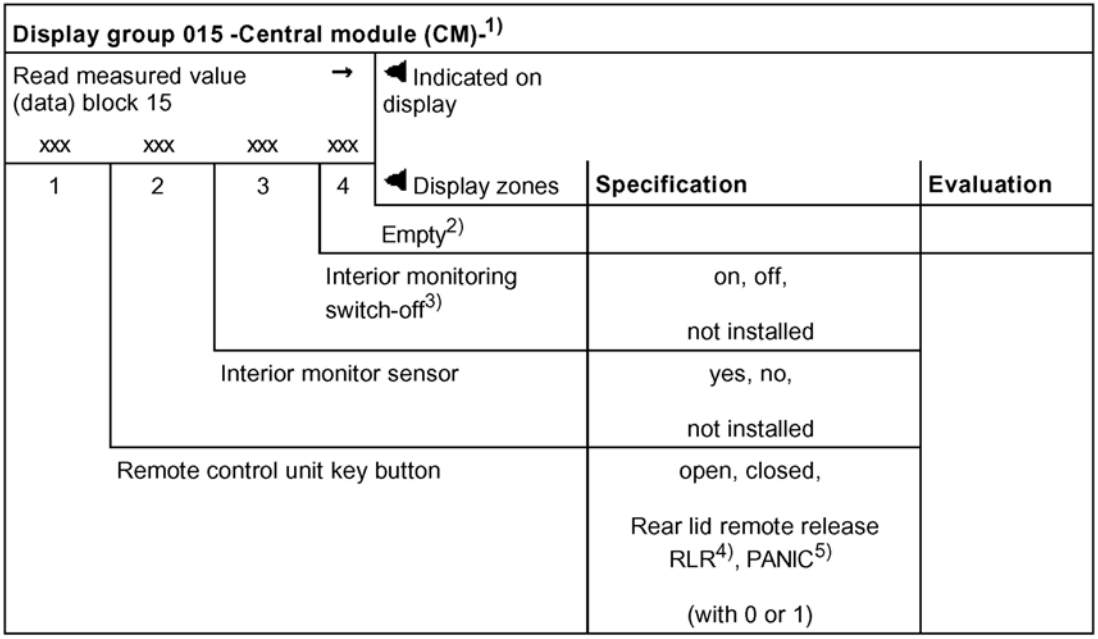
Display zone	Designation	Display contents	Corrective action
1	Permanent code known	OK. not OK no measured value(1)	For not OK: • Key code is outside the range of the receiver. Adapt radio wave control unit again via function 10 (Adaptation) (see **RADIO FREQUENCY REMOTE CONTROL, PROGRAMMING IGNITION KEYS, MATCHING (ADAPTATION)**)
2	Code within effective range	OK. not OK	

		no measured value(1)	For no measurement: • Battery in key is discharged (empty), change battery • Radio wave control unit is faulty, replace key unit
3	Algorithm	OK. not OK no measured value(1)	
4	Key number	mv = 1...4 (2)	When operating a "learned" radio wave remote control key, as shown here, indicates in which position the key was learned/taught.If the tester displays "0" even when the remote button is pressed, this key must be "re-synchronised" using adaption (10).

(1) Key not operated at this moment. If the remote control key is operated several times the third display - no measured value - will change to "OK".

(2) A max. of 4 remote controls can be "learned".

Break down of display content for display group number 015



1) Max version only

2) Empty means in this case: Display zone is blank

3) Interior monitoring switch-off

4) RLR= Rear Lid Remote Release

5) Only vehicles for USA, alarm system and turn signal lights are activated

G03258899

Fig. 99: Break Down Group Display 015 Chart - 3rd Generation Vehicles From 06.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 015

EVALUATING DISPLAY GROUP NUMBER 015 CHART - 3RD GENERATION VEHICLES FROM 06.01

Display zone	Designation	Display contents	Corrective action
1	Remote control unit key button	open, closed, Rear lid remote release RLR(1) , PANIC(2) (with 0 or 1)	• Adapt remote control unit again if necessary (Function 10, Adaptation, see **RADIO FREQUENCY REMOTE CONTROL, PROGRAMMING IGNITION KEYS, MATCHING (ADAPTATION)**)
2	Interior monitor sensor	yes, no, not installed	

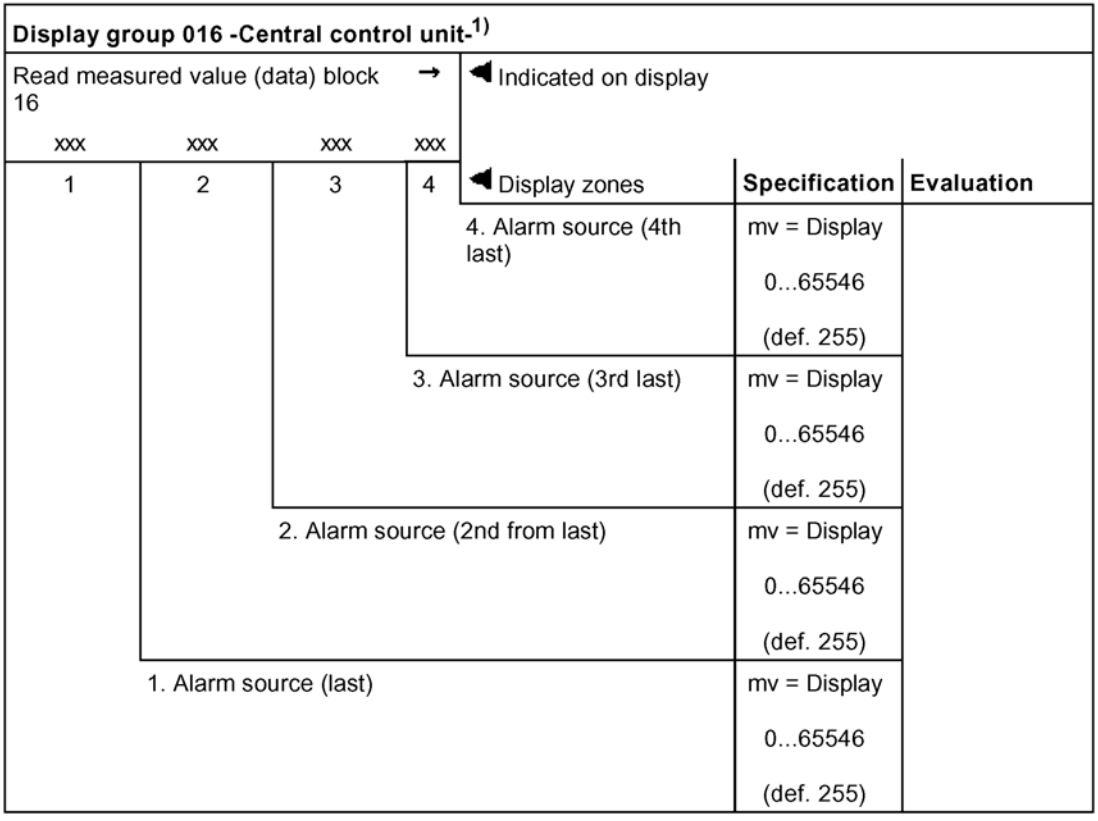
3	Interior monitoring switch-off(3)	on, off, not installed	

(1) RLR= Rear Lid Remote Release

(2) Only vehicles for USA, alarm system and turn signal lights are activated

(3) Interior monitoring switch-off

Break down of display content for display group number 016



1) Max version only

G03258900

Fig. 100: Break Down Group Display 016 Chart - 3rd Generation Vehicles From 06.01
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Break down of display content for display group number 016

BREAK DOWN GROUP DISPLAY 016 CHART - 3RD GENERATION VEHICLES FROM 06.01

Display zone	Designation	Display contents	Corrective action

1	Alarm source (last)	Display, see **ANTI-THEFT ALARM SYSTEM SPECIFICATIONS - 3RD GENERATION VEHICLES FROM 06.01** .	Only the last 4 ATA (1) activations are shown! for example "64" = Hood contact switch (see table below for possible sources of alarm)
2	Alarm source (2nd from last)		
3	Alarm source (3rd last)		
4	Alarm source (4th last)		
(1) Anti-theft alarm system			

ANTI-THEFT ALARM SYSTEM SPECIFICATIONS - 3RD GENERATION VEHICLES FROM 06.01

Possible sources of alarm	Display
Trunk lid/tailgate contact switch	1
Front passenger rotary latch switch	8
Ignition	16
Immobilizer	17
Interruption intelligent horn	18
Interior monitoring	32
Hood contact switch, radio	64
Driver's rotary latch switch	128
No alarm	255

RADIO FREQUENCY REMOTE CONTROL, PROGRAMMING IGNITION KEYS, MATCHING (ADAPTATION)

NOTE:

- **If new or additional ignition keys are required they must be adapted to the immobilizer and Comfort System (vehicles with power windows) control electronics.**
- **All the keys must be adapted, even the existing ignition keys.**
- **All the keys must not be adapted again when including a new additional key. See NEW ADDITIONAL KEY, ADAPTING .**
- **The number of keys already adapted will be displayed when the adaption function is selected.**
- **With the introduction of this generation of Comfort System (vehicles with power windows) it is possible to program additional functions. The functions and the programming are described in COMFORT SYSTEM (VEHICLES WITH POWER WINDOWS) FUNCTIONAL VARIATIONS .**
- **The adaption procedure can be interrupted by pressing the "C" button on the V.A.G 1551.**

WARNING: The V.A.G 1551 or the VAS 5051 dealership number (workshop code) will

be stored in immobilizer control unit when matching ignition keys.

Adapt all ignition keys

Requirements:

- All ignition keys available. If no old ignition key is available, see "Lost key procedure".

  See Anti-theft Immobilizer; **TRANSPONDER (KEY)** .

- Key fob with covered PIN number is available, if not see "Secret number, determining".

  See Anti-theft Immobilizer; **TRANSPONDER (KEY)** .

NOTE: Effective calendar date 03.11.2002, the immobilizer secret number is encoded for increased security. The encoded number is now 7-digits and is referred to as a "PIN" ("Personal Identification Number").

- Insert correct profile ignition key in the ignition lock.
- Connecting V.A.G 1551 or VAS 5051, see **SCAN TOOL, CONNECTING** . Initiating On Board Diagnosis (OBD), see **ON BOARD DIAGNOSIS (OBD) FOR THE COMFORT SYSTEM (VEHICLES WITH POWER WINDOWS), INITIATING** .

The adaption shown here is only an example.

Indicated on display:

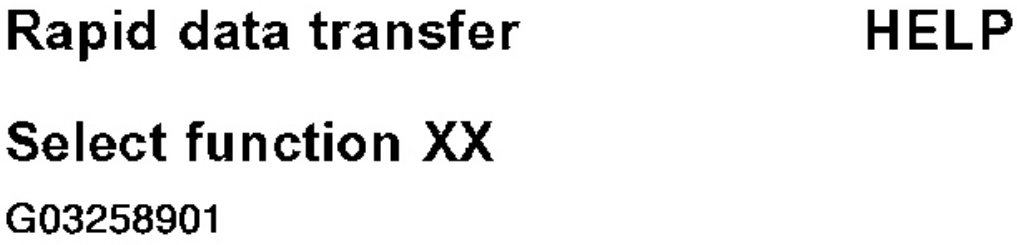


Fig. 101: Scan Tool Display - Adapt All Ignition Keys (1 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -1- and -0- (10 selects the "Adaptation" function).

Indicated on display:

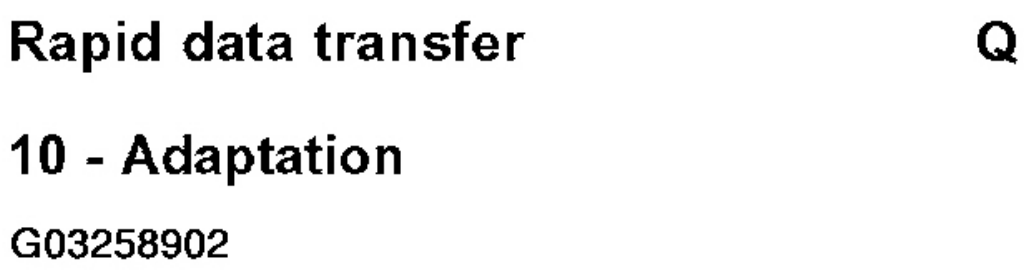


Fig. 102: Scan Tool Display - Adapt All Ignition Keys (2 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

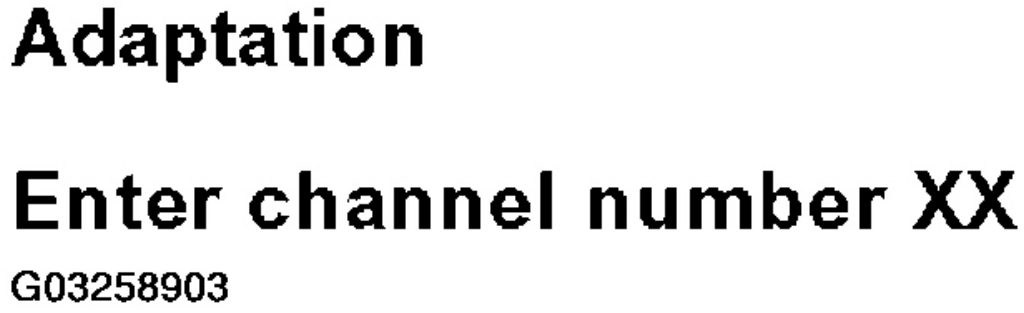


Fig. 103: Scan Tool Display - Adapt All Ignition Keys (3 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -0- (all keys are erased with channel number 00).
- Confirm entry with -Q- button.

NOTE: It is not possible to match a new or additional key (s) without erasing existing learned/matched key (s).

Indicated on display:

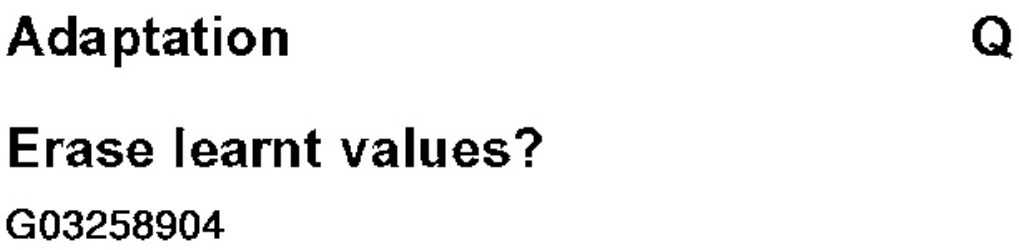


Fig. 104: Scan Tool Display- Adapt All Ignition Keys (4 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

Fig. 105: Scan Tool Display - Adapt All Ignition Keys (5 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press --> button.

Indicated on display:

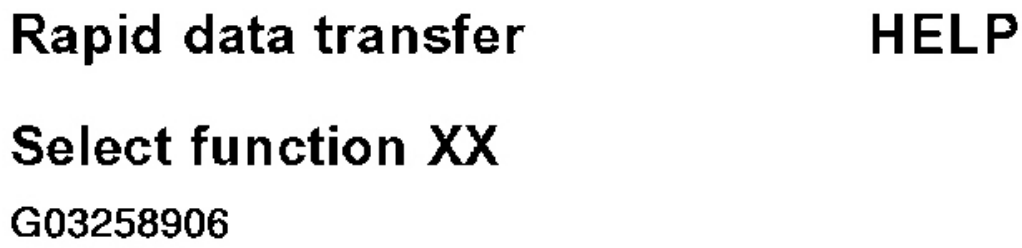


Fig. 106: Scan Tool Display - Adapt All Ignition Keys (6 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -1- and -0- (10 selects the "Adaptation" function).

Indicated on display:

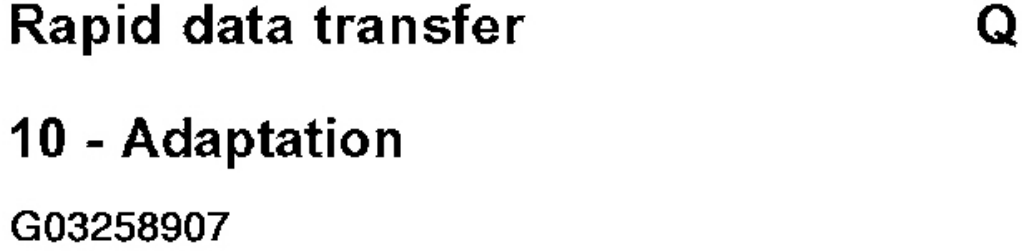


Fig. 107: Scan Tool Display - Adapt All Ignition Keys (7 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

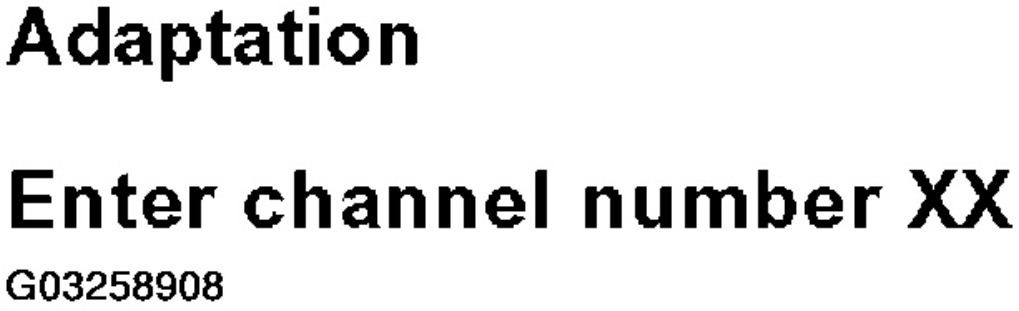


Fig. 108: Scan Tool Display - Adapt All Ignition Keys (8 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -1-. (all keys are "learned" with channel number 01.)

Indicated on display:

Fig. 109: Scan Tool Display - Adapt All Ignition Keys (9 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

Fig. 110: Scan Tool Display - Adapt All Ignition Keys (10 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The top line displays number of keys to be learned (Standard =1). Select number of keys with buttons -1- and -3-.

- Press --> button.

Indicated on display:

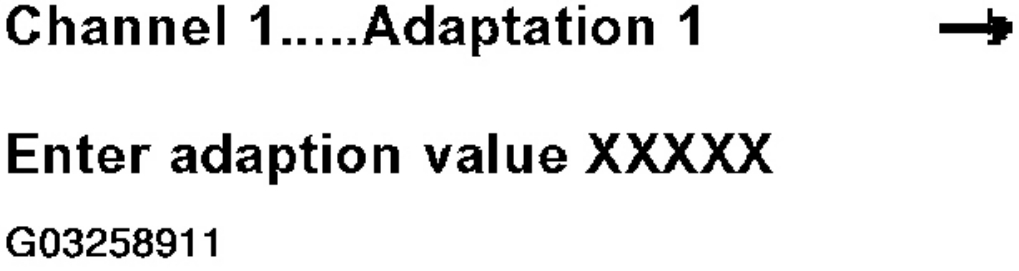


Fig. 111: Scan Tool Display - Adapt All Ignition Keys (11 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press the -0- button four times and then enter the number of all ignition keys to be adapted, including the existing key, (e.g. 00003); max. Qty of 4 possible.
- Press --> button.

Indicated on display: Number of radio wave key to be "learned".

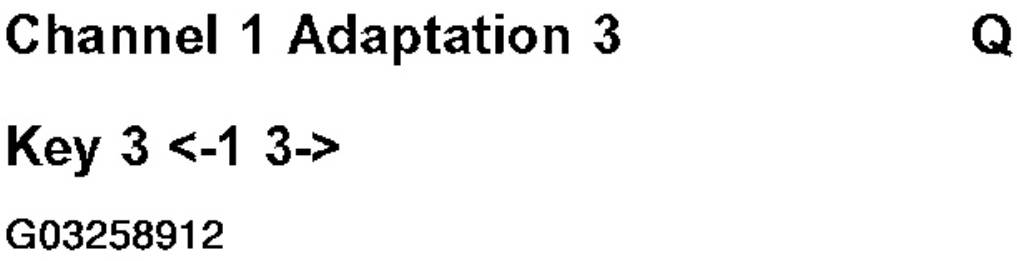


Fig. 112: Scan Tool Display - Adapt All Ignition Keys (12 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

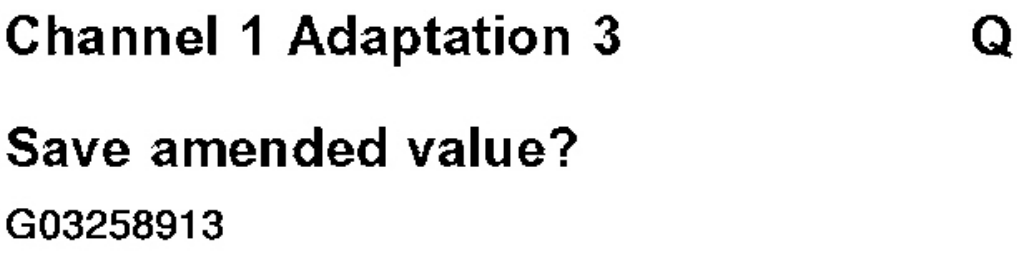


Fig. 113: Scan Tool Display - Adapt All Ignition Keys (13 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

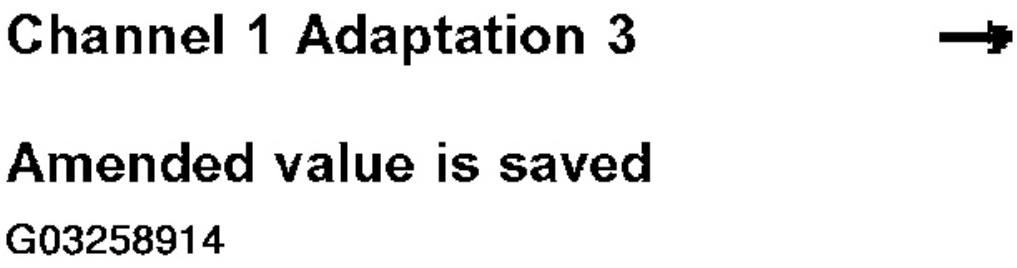


Fig. 114: Scan Tool Display - Adapt All Ignition Keys (14 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press --> button.

Indicated on display:

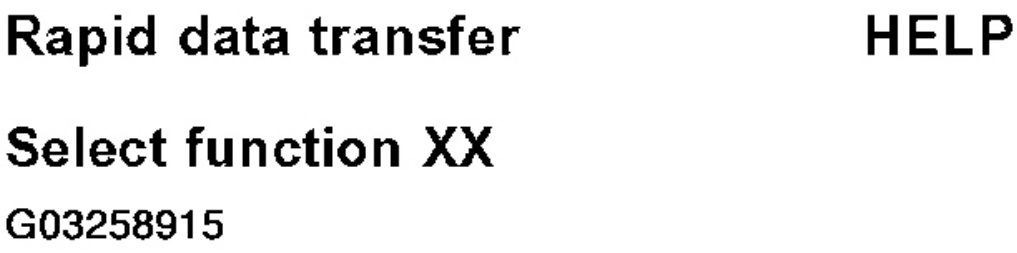


Fig. 115: Scan Tool Display - Adapt All Ignition Keys (15 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Operate button on each of the radio wave remote control keys to be learned/taught once, for at least 1 second (3 keys in above example).
- Switch off ignition and remove ignition key.
- Perform functional check (e.g. 3) of radio wave keys.

NOTE:

- **A successful adaptation can be proven in read measured value block (Function 08).**

Comfort System (vehicles with power windows) 2nd generation: Display group number 009, see BREAK DOWN OF DISPLAY CONTENT FOR DISPLAY GROUP NUMBER 009 , or display group number 013, see BREAK DOWN OF DISPLAY CONTENT FOR DISPLAY GROUP NUMBER 013 .

Comfort System (vehicles with power windows) 3rd generation: Display group number 014, see BREAK DOWN OF DISPLAY CONTENT FOR DISPLAY GROUP NUMBER 014 , or display group number 015, see BREAK DOWN OF DISPLAY CONTENT FOR DISPLAY GROUP NUMBER 015 .

- **All 3 keys (see example) can be learned/taught in one adaptation sequence.**
- **When adapting all keys (pressing a button), 15 seconds must not be exceeded.**

The adaptation of ignition keys is automatically terminated when:

- Number of keys to be adapted is reached.
- A button of one of the keys to be "learned" is pressed frequently.
- Permissible matching period of 15 seconds is exceeded (fault is stored).

- Select function 02 "Check DTC memory". If there is no DTC stored, the matching of the keys has been successfully completed.

NEW ADDITIONAL KEY, ADAPTING

- Insert a mechanically correct (old) ignition key in the ignition lock.
- Switch on ignition.
- Using a new (not taught / not learned) key, mechanically lock the vehicle (e.g. drivers door) and then operate one of the remote control buttons on key.
- After a pause of more than one second, operate one of the remote control buttons on key a second time.
- The adaptation sequence is complete and will be confirmed by the vehicle by a feedback horn beep.

The various functions listed in **COMFORT SYSTEM (VEHICLES WITH POWER WINDOWS) FUNCTIONAL VARIATIONS** table can be called up by selecting channel numbers 03...10 and adapted.

COMFORT SYSTEM (VEHICLES WITH POWER WINDOWS) FUNCTIONAL VARIATIONS

COMFORT SYSTEM (VEHICLES WITH POWER WINDOWS) FUNCTIONAL VARIATIONS

Channel number	Significance	Measured value
03	Auto-lock: Vehicle is locked automatically when reaching a speed of 15km/h (approx. 9.5 mph)	on=1 off = 0
04	Auto-Unlock: Vehicle is unlocked automatically when removing ignition	on=1

	key from ignition lock	off = 0
05	IM switch off: Interior monitor (IM) is activated/deactivated by pressing central locking "lock" twice	on=1 off = 0
06	Horn tone for unlock: Confirmation sound when unlocking(1)	on=1 off = 0
07	Horn tone for lock: Confirmation sound when locking(1)	on=1 off = 0
08	Indicators flash when unlocking: Confirmation flash of turn signals when unlocking	on=1 off = 0
09	Indicators flash when locking: Confirmation flash of turn signals when locking	on=1 off = 0
10	Adjusting alarm horn: Programming alarm horn to react when triggered to meet the relevant statutory regulations for the respective country	1 = Rest of Europe 2= Germany 3= UK
(1) No longer permitted in Germany according to current statutory regulations.		

The adaption shown here is only an example.

Indicated on display:

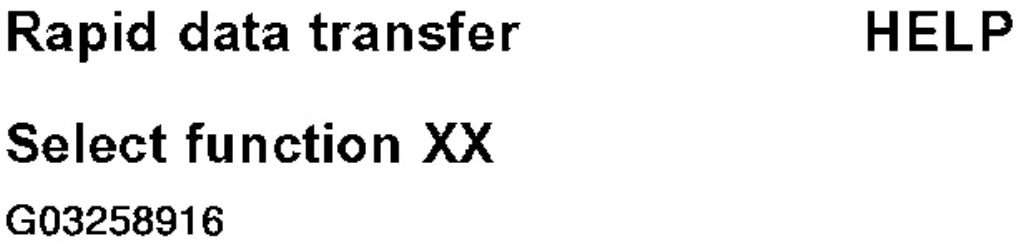


Fig. 116: Scan Tool Display - Comfort System Adaptions (1 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -1- and -0- (10 selects the "Adaptation" function).

Indicated on display:

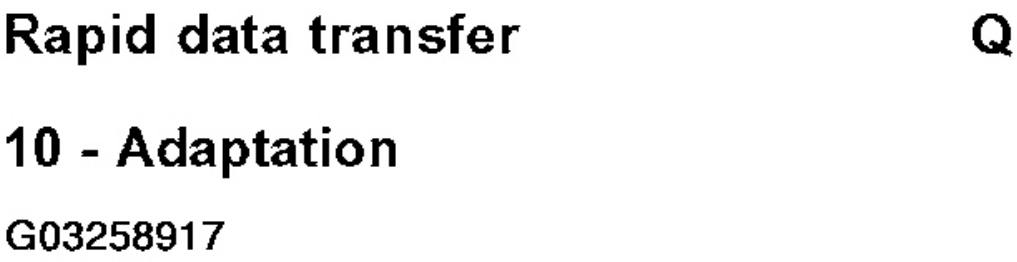


Fig. 117: Scan Tool Display - Comfort System Adaptions (2 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

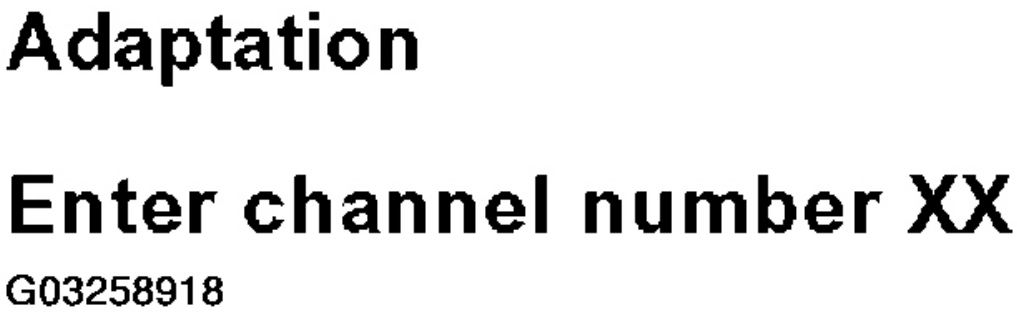


Fig. 118: Scan Tool Display - Comfort System Adaptions (3 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -8- (channel number 08 switches the turn signals on or off when unlocking).

Indicated on display:

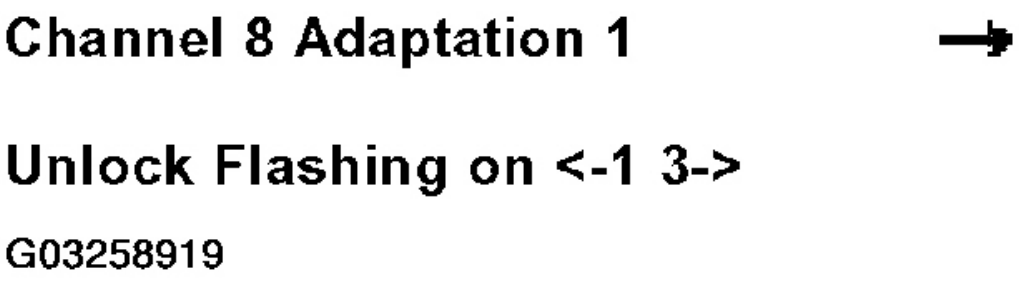


Fig. 119: Scan Tool Display - Comfort System Adaptions (4 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press --> button.

Indicated on display:

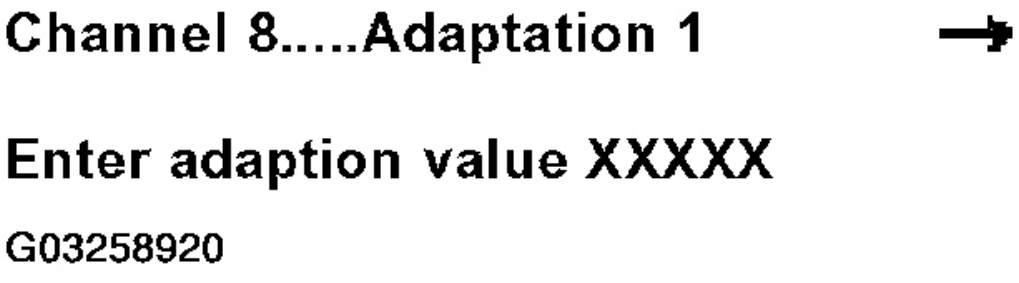


Fig. 120: Scan Tool Display - Comfort System Adaptions (5 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press --> button.
- Press button -0- five times (e.g. 00000).

Indicated on display:

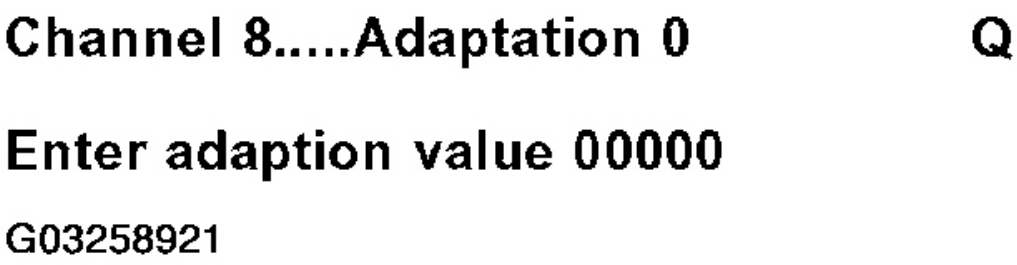


Fig. 121: Scan Tool Display - Comfort System Adaptions (6 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

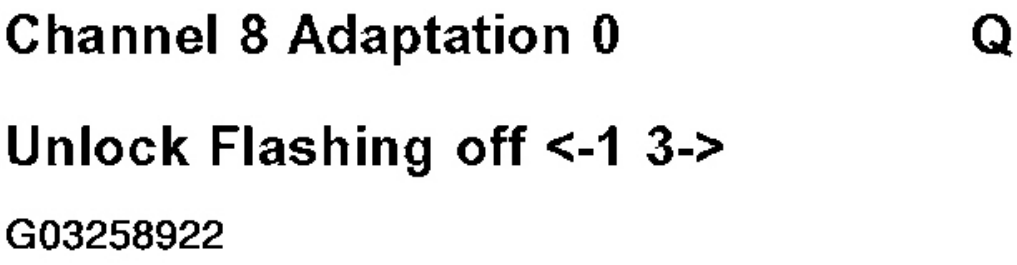


Fig. 122: Scan Tool Display - Comfort System Adaptions (7 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

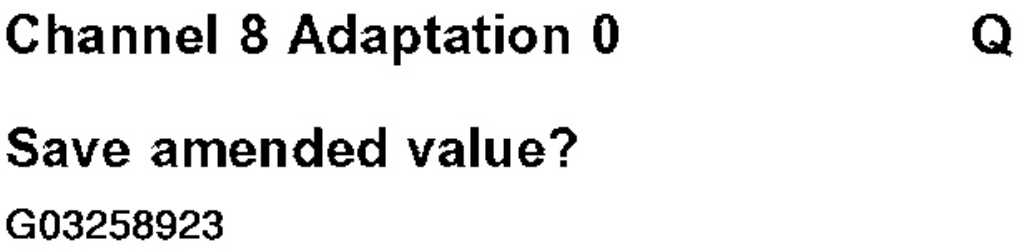


Fig. 123: Scan Tool Display - Comfort System Adaptions (8 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

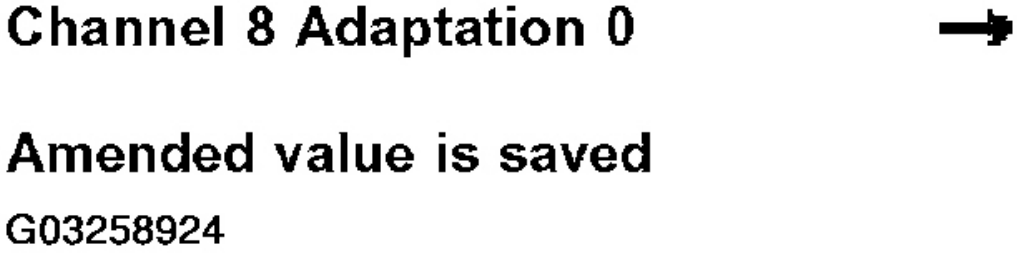


Fig. 124: Scan Tool Display - Comfort System Adaptions (9 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press --> button.

Indicated on display:

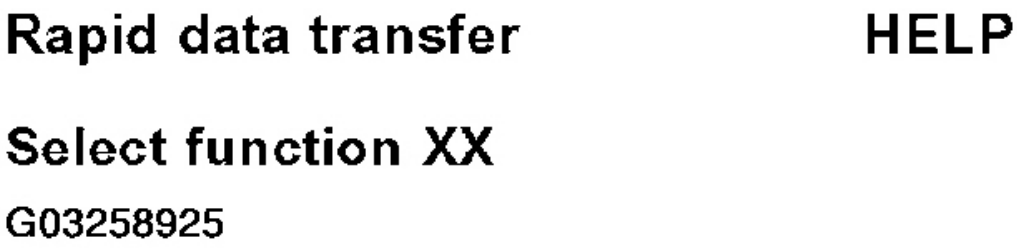


Fig. 125: Scan Tool Display - Comfort System Adaptions (10 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -6- to end the output.

Indicated on display:

Fig. 126: Scan Tool Display - Comfort System Adaptions (11 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

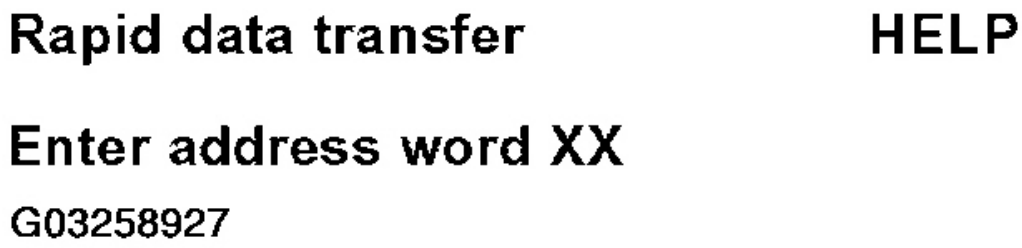


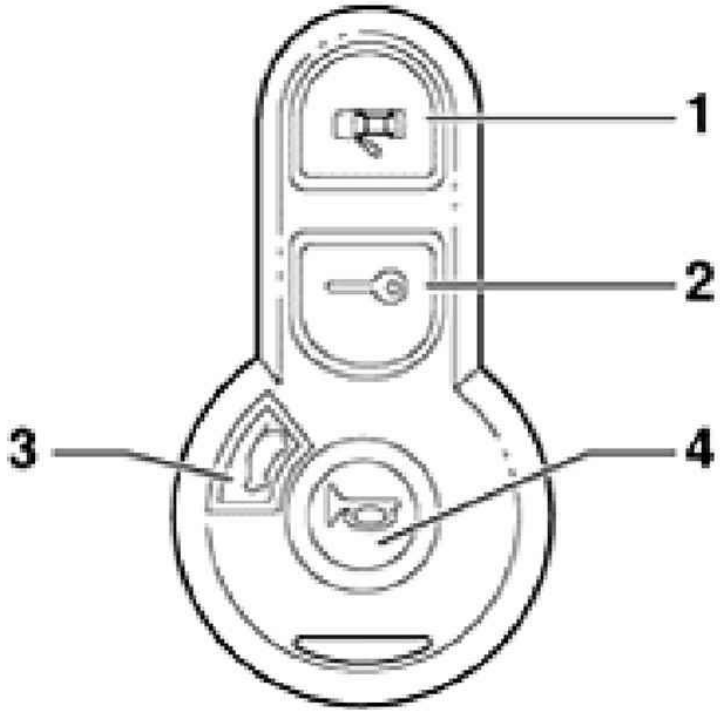
Fig. 127: Scan Tool Display - Comfort System Adaptions (12 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Switch off ignition and disconnect diagnostic connection.

RADIO FREQUENCY REMOTE CONTROL BATTERIES, REMOVING AND INSTALLING

NOTE: The following list refers to items in Fig. 128 .

1. Button for unlocking Vehicle
2. Button for locking Vehicle
3. Button for rear compartment door release
4. Panic button (horn/signal lights)



1 - Button for unlocking Vehicle

2 - Button for locking Vehicle

3 - Button for rear compartment door release

4 - Panic button (horn/signal lights)

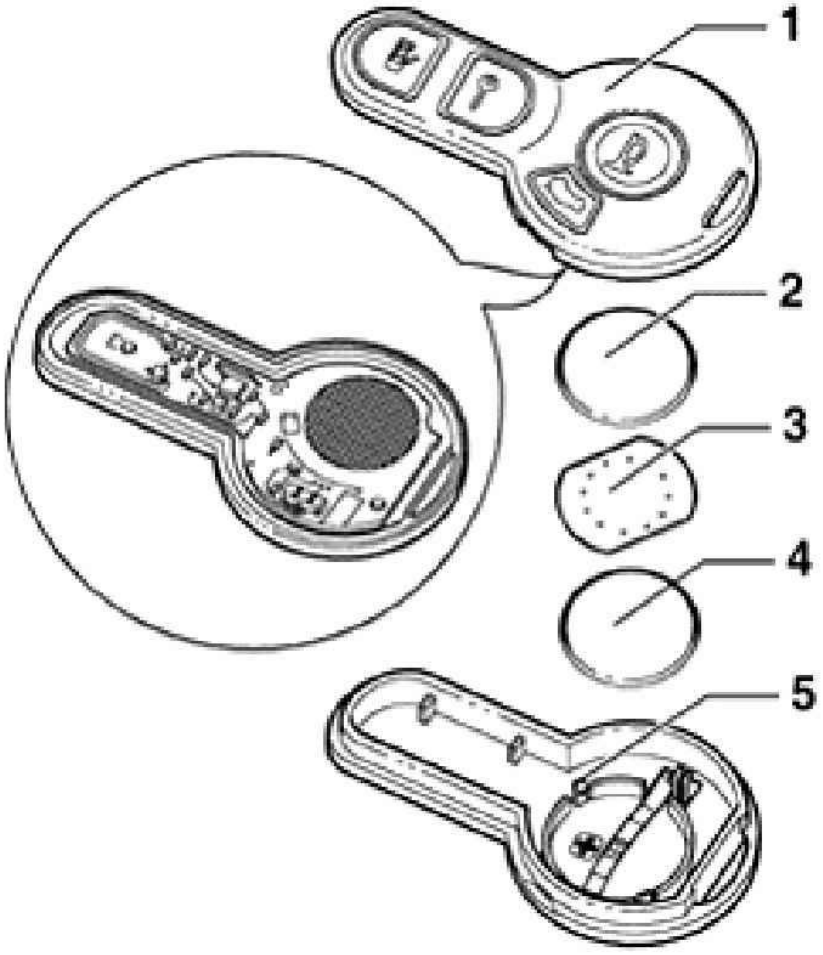
G03258928

Fig. 128: Identifying Remote Control Buttons
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE: The following list refers to items in Fig. 129 .

1. Upper housing (transmitter with buttons)
2. Battery
3. Metal contact
4. Battery

5. Lower housing



1 - Upper housing (transmitter with buttons)

2 - Battery

3 - Metal contact

4 - Battery

5 - Lower housing

G03258929

Fig. 129: Exploded View Of Remote Control
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Removing

- Using screwdriver or coin, separate upper housing from lower housing.

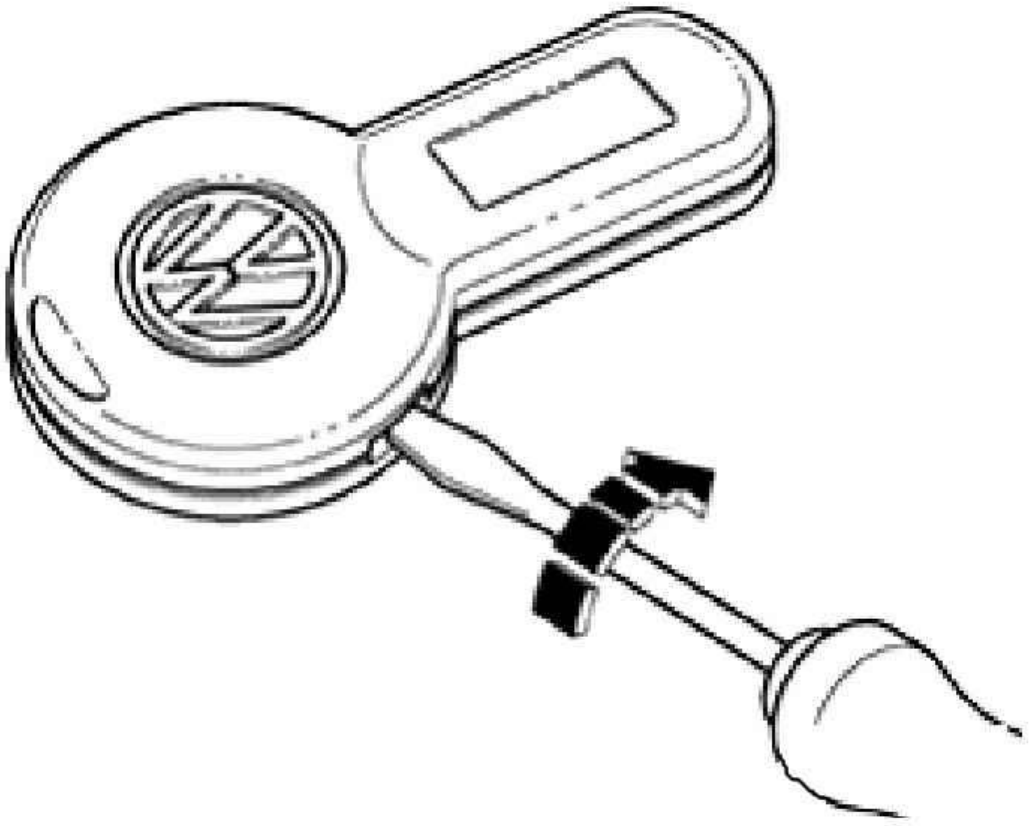


Fig. 130: Separating Upper Housing From Lower Housing
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Using screwdriver, remove upper battery -1- from bracket -2- in direction of arrow.

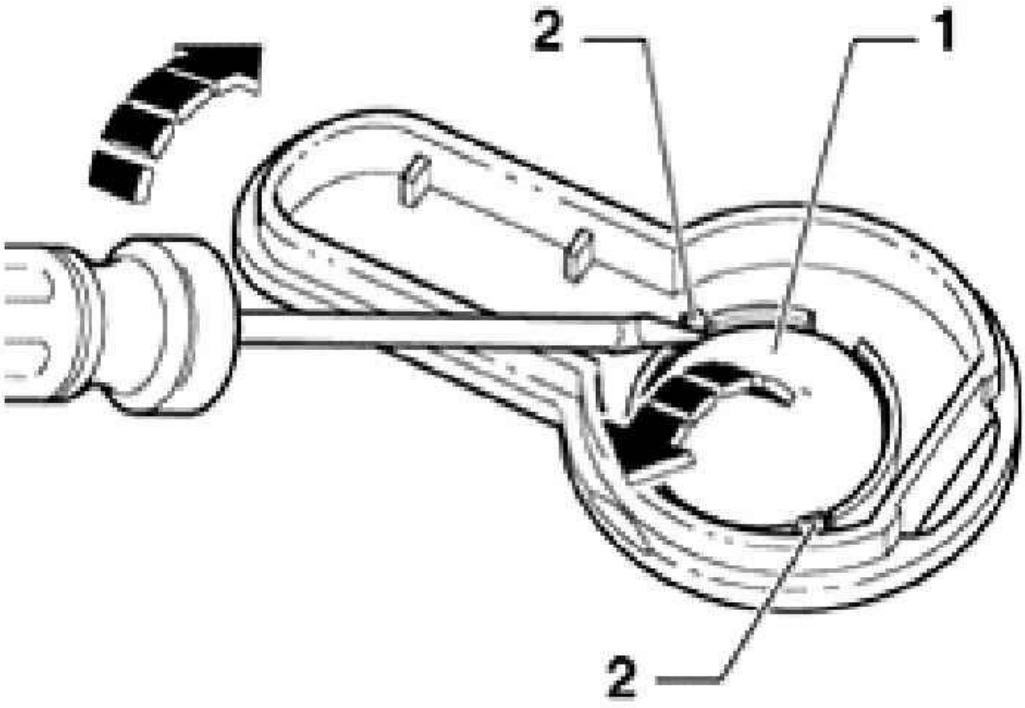


Fig. 131: Removing Upper Battery From Bracket
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Metal contact -1- has two straight edges. Turn these edges toward catches and remove metal contact.
- Remove lower battery using screwdriver.

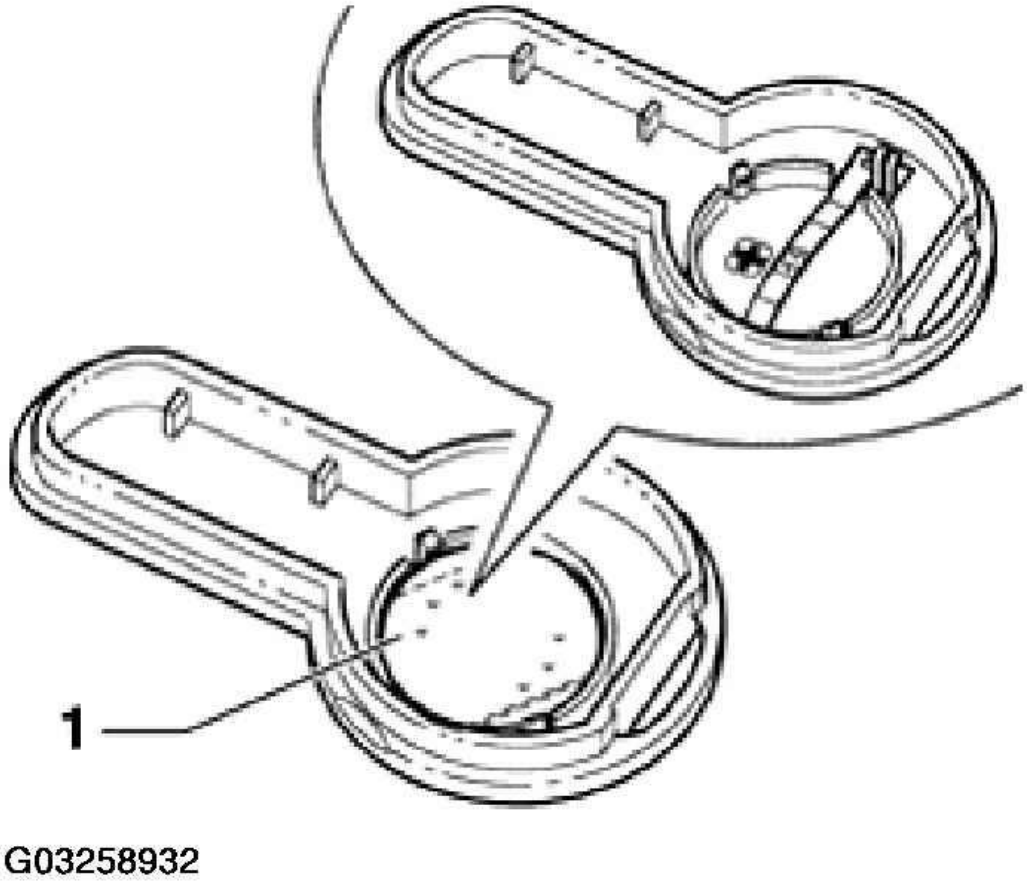


Fig. 132: Removing Lower Battery From Bracket
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Installing

When installing batteries, make sure batteries are installed correctly according to polarity.

- Install battery -4- positive side down in lower housing -5-. See **Fig. 133** .
- Place metal contact -3- on battery -4-.
- Place battery -2- plus side down on metal contact -3- and lock in place.
- Attach upper housing -1- with transmitter to lower housing -2- and lock in place.

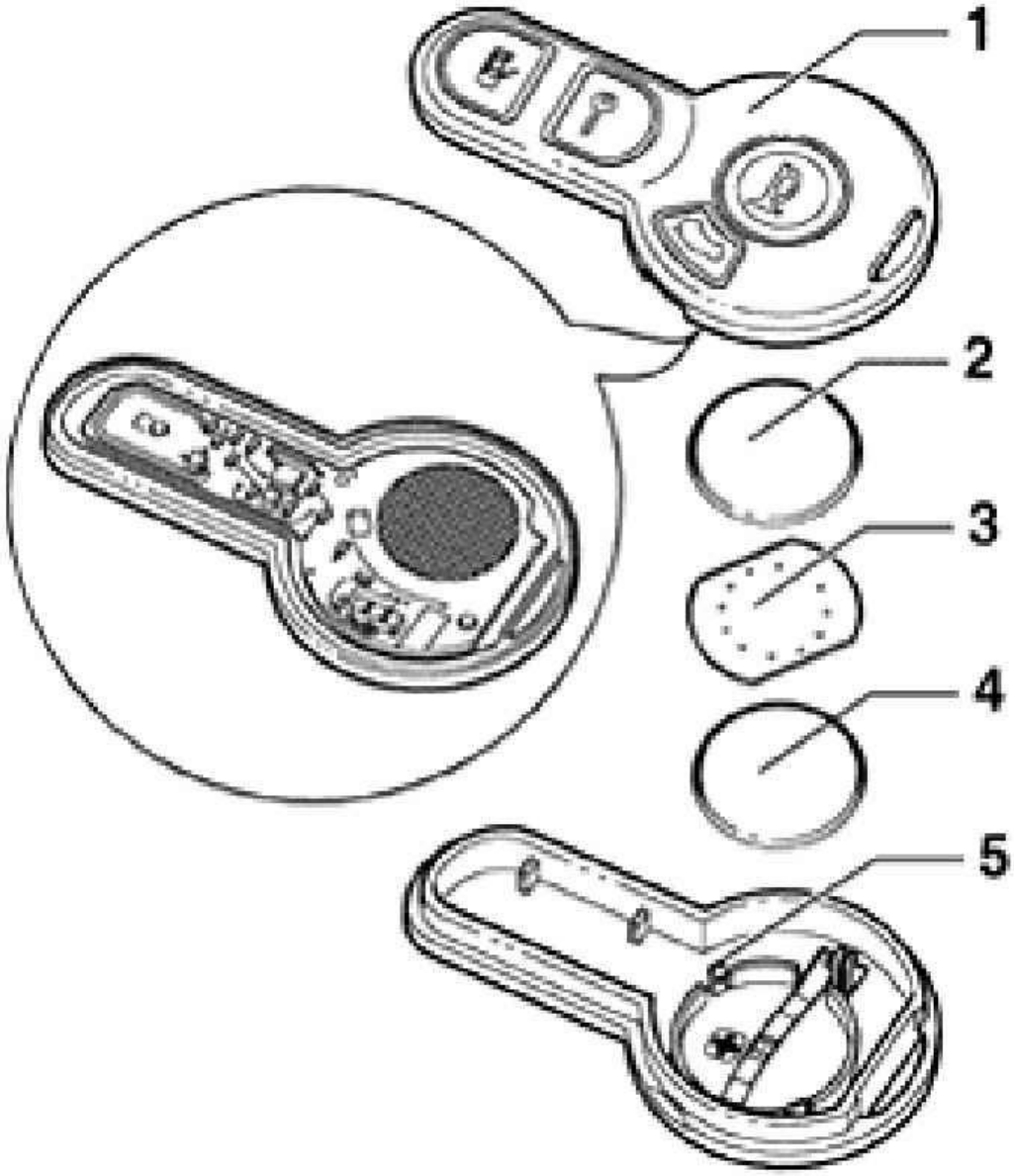
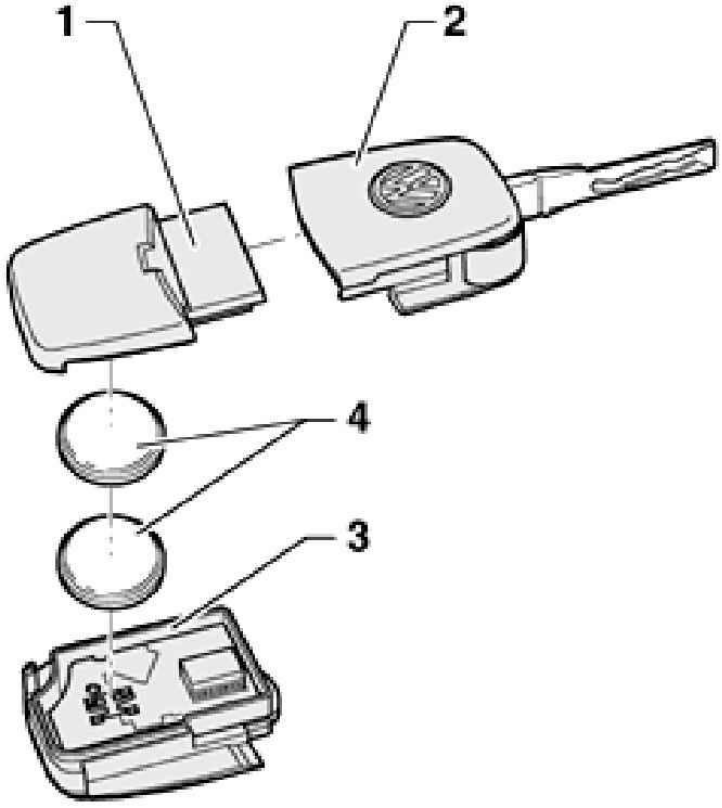


Fig. 133: Exploded View Of Remote Control
Courtesy of VOLKSWAGEN OF AMERICA, INC.

BATTERIES FOR MAIN KEY (FOLDING) WITH RADIO FREQUENCY REMOTE CONTROL, REMOVING AND INSTALLING

NOTE: The following list refers to items in Fig. 134 .

1. Transmitter unit - upper part (turned-over)
2. Main key with variable code transponder
3. Transmitter unit - lower part
4. Button battery



1 - Transmitter unit - upper part (turned-over)

2 - Main key with variable code transponder

3 - Transmitter unit - lower part

4 - Button battery

G03258934

Fig. 134: Exploded View Of Main Key (Folding) With Radio Frequency Remote Control
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Removing

- Insert a screwdriver in the slot between the transmitter unit -1- and the main key -2-.

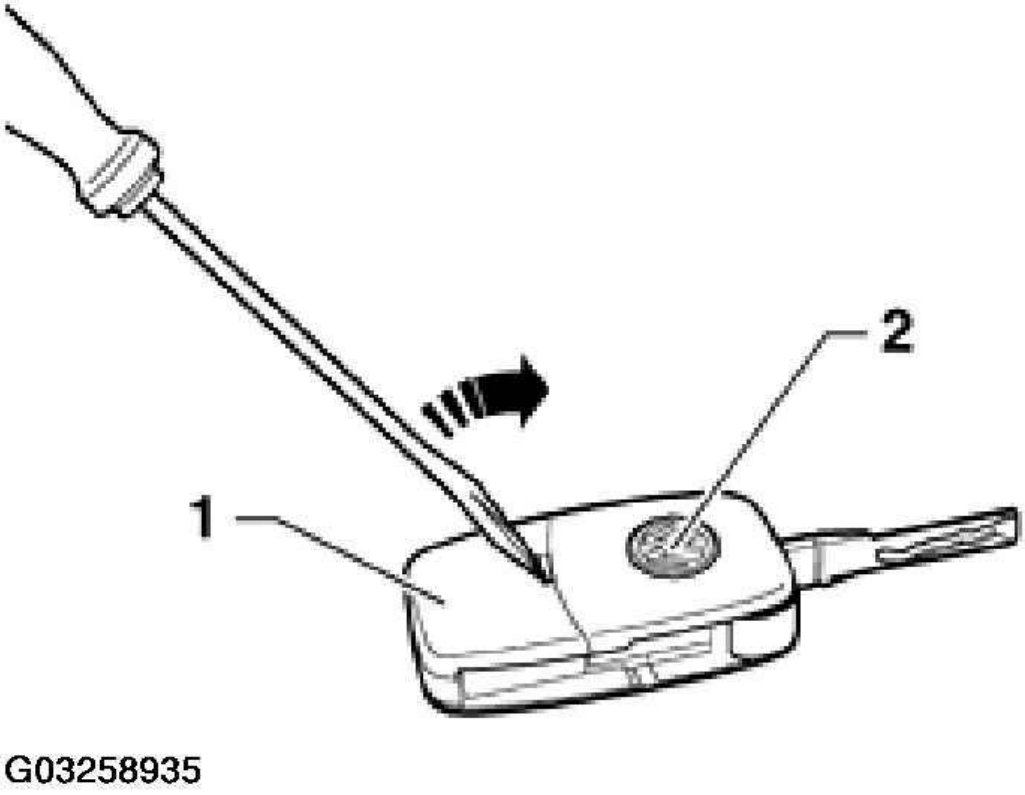


Fig. 135: Inserting Screwdriver In The Slot Between The Transmitter Unit And The Main Key
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Move the screwdriver in direction of arrow and unclip the transmitter unit from the main key.
- Press the transmitter unit apart in direction of arrow.

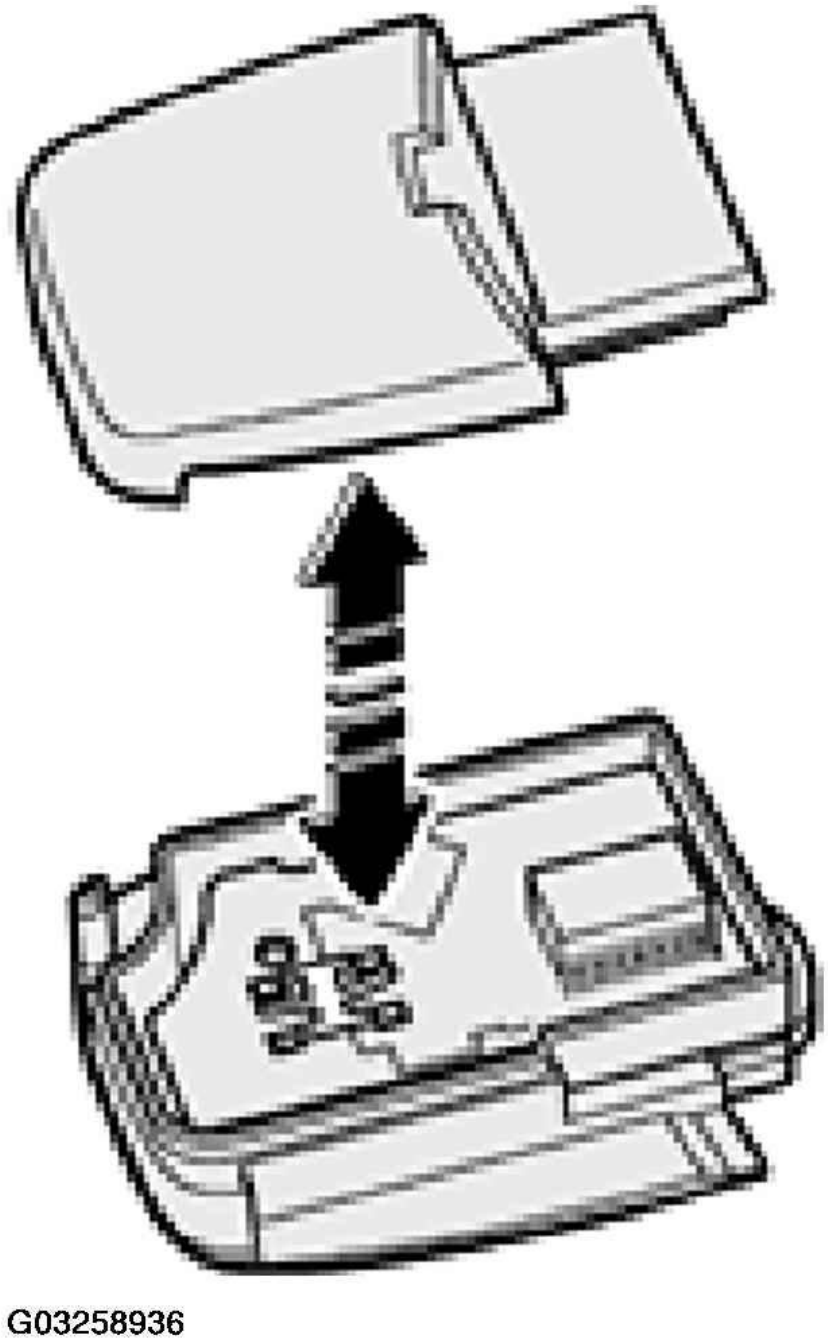


Fig. 136: Pressing The Transmitter Unit Apart In Direction Of Arrow
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Unclip batteries from the retainers in direction of arrow using a screwdriver.

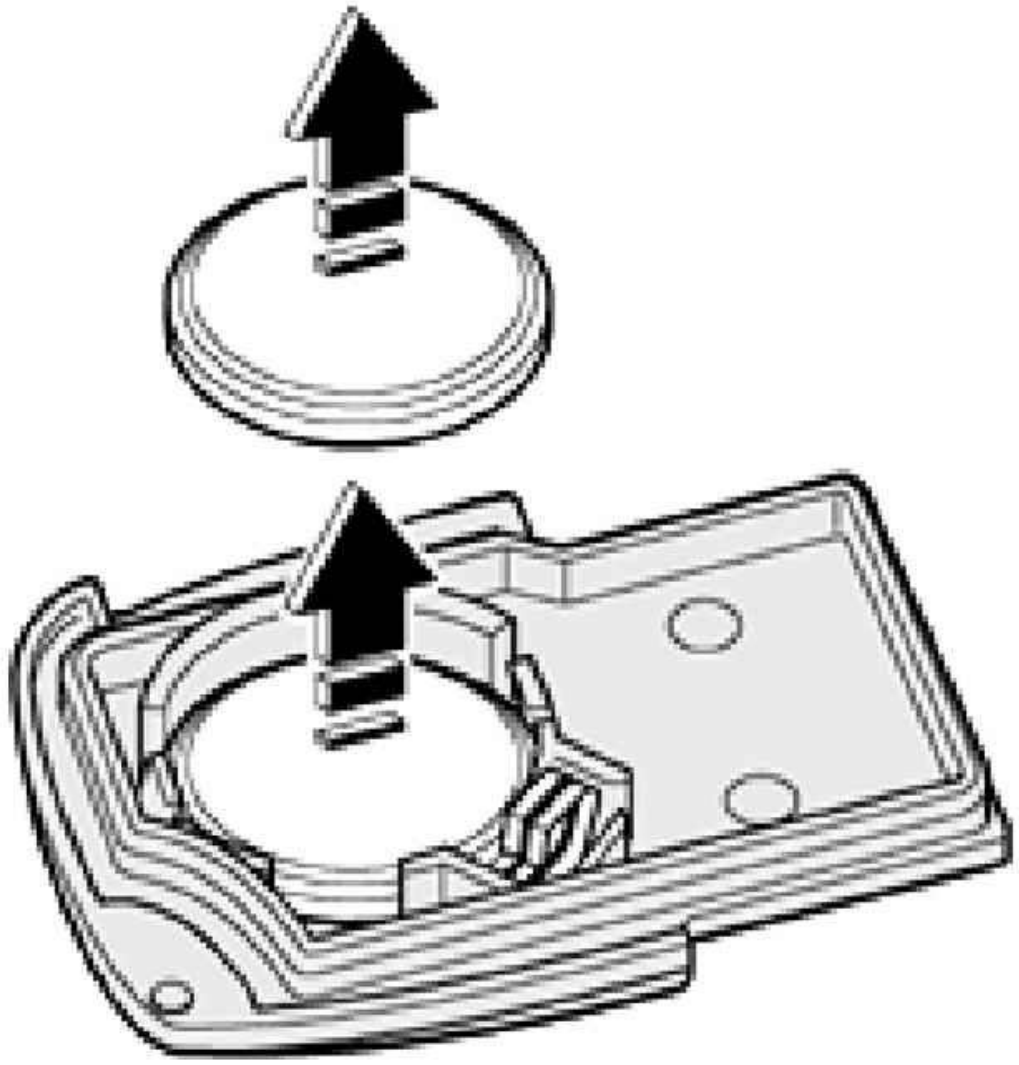


Fig. 137: Removing Batteries From Transmitter Unit
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Installing

Note the polarity and correct position when installing the batteries.

- Place the battery with the positive terminal downward into the sender unit (positive terminal is marked on

housing).

- Engage battery in transmitter body by pressing down lightly.
- Install cover on transmitter body (do not damage seal).
- Then engage the transmitter unit with the main key.

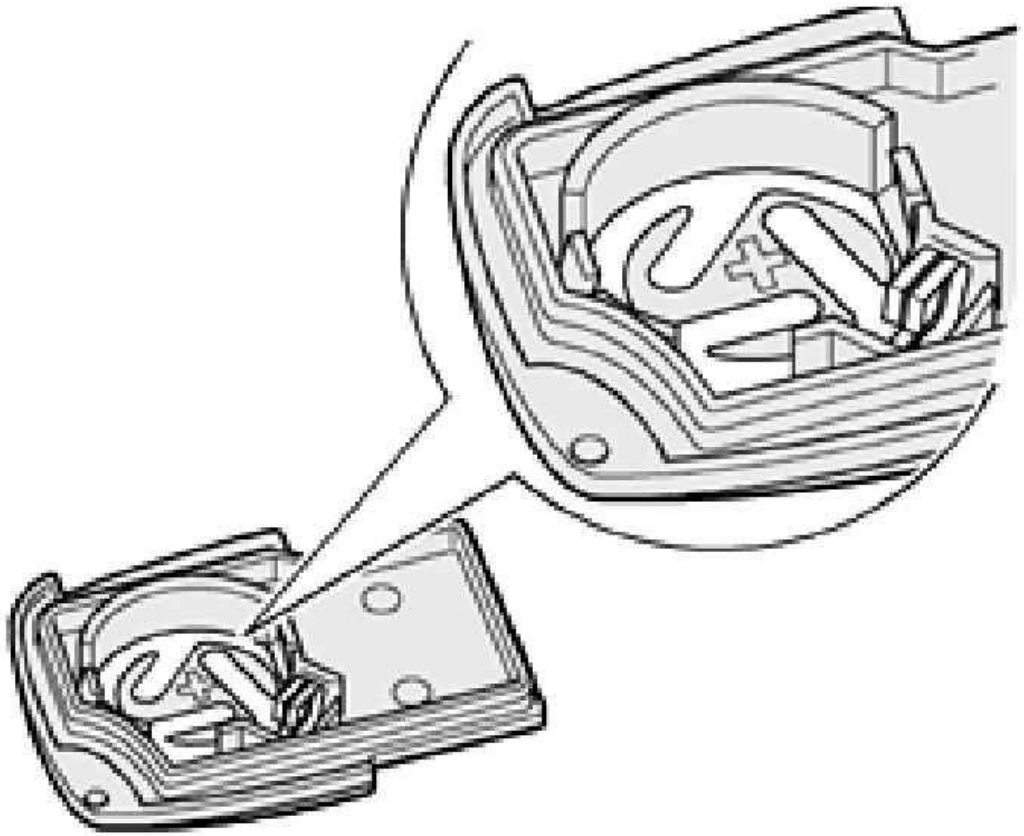


Fig. 138: Locating Positive Terminal Of Transmitter Unit
Courtesy of VOLKSWAGEN OF AMERICA, INC.

CENTRAL LOCKING, ON BOARD DIAGNOSIS (OBD)

FUNCTIONAL DESCRIPTION

The vehicle has as far as the On Board Diagnostic (OBD) is concerned has a central locking system (not convenience system) when the vehicle is not equipped with electric windows with door control units.

The central locking system works using the electric motor principle.

The locking units (door locks) located in the doors are equipped with electric motors.

After receiving a "lock" command from an external source (door lock, radio wave remote control) the doors are locked, the anti-theft system is activated. If necessary, the sliding/tilting sunroof is closed. The feedback message for the relevant control unit is via the contact switch in the lock unit.

The electrical central locking system can operate all the known convenience functions, that is, control of interior lights, anti-theft alarm with interior monitoring, electric windows and mirrors as well as radio wave remote control.

If an airbag is triggered this automatically sends a signal to the central locking control unit which unlocks the doors and switches on the interior lights.

The control unit for the central locking control unit -J393- is located under the instrument panel and is secured to the steering column by a bracket. It is equipped with a DTC memory. The On Board Diagnosis (OBD) connection is located beneath the cover under the steering wheel.

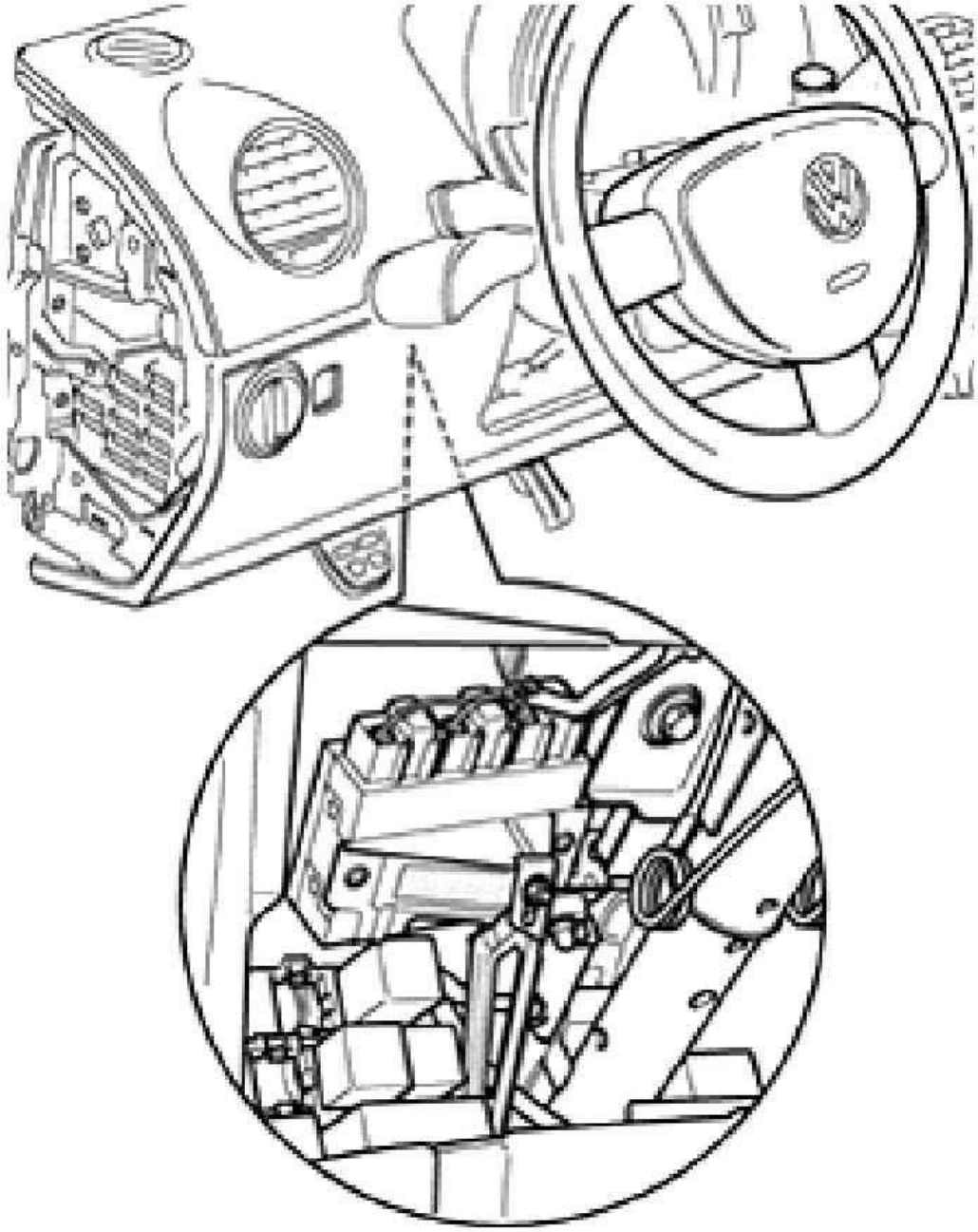


Fig. 139: Locating Central Locking Control Unit
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The control unit detects malfunctions in the central locking system and stores them in a permanent memory.

To operate Guided Fault Finding, initiate On Board Diagnosis (OBD) and retrieve the stored information with the scan tool V.A.G 1551.

System tester V.A.G 1552 may also be used.

All functions which could previously be performed with V.A.G 1551/1552 can also be performed with the new tester VAS 5051 in the operating mode vehicle On Board Diagnosis (OBD):

See Operating instructions for Vehicle Diagnosis, Testing and Information System VAS 5051.

The malfunction information displayed is used to refer to a Diagnostic Trouble Code (DTC) table with notes on the possible malfunction causes for directed repair measures.

Malfunctions which can be attributed to a temporary open circuit in the wiring or a loose terminal, will also be stored. These malfunctions will be displayed as sporadic faults "SP".

NOTE: Before changing a component erase DTC memory, perform functional checks and check DTC memory again.

SYSTEM ACTIVE INDICATOR

The optical functional display for the central locking is an LED in the drivers door upper trim section. The LED flashes for 28 days after locking the door and goes out if the doors are not unlocked within this period.

The function of the anti-theft alarm system (ATA) is not distinctly indicated.

ANTI-THEFT ALARM SYSTEM, POSSIBLE ITEMS CAUSING TRIGGERS

The breakdown of the display content illustrated in **EVALUATING DISPLAY GROUP NUMBER 010** for the display group number 10 gives information as to which component triggered the alarm system last, and can therefore help the Guided Fault Finding/correction.

This "DTC memory" cannot be erased.

ON BOARD DIAGNOSIS (OBD) FOR THE CENTRAL LOCKING SYSTEM, INITIATING

Test prerequisites:

- Voltage supply and fuses for the respective system OK.
- To initiate the On Board Diagnosis (OBD) the ignition must be switched on "Terminal 15 on".

Initiating

NOTE: If the display remains blank, check V.A.G 1551 voltage supply referring to

Electrical Wiring Diagram.

- Additional operating information can be printed out depending on the program by pressing the HELP button of V.A.G 1551.
- The --> button serves to advance the program sequence.
- The PRINT button is used for switching on the printer (warning lamp in key lights up).
- Connecting scan tool, see **Scan tool, connecting** .
  - Switch on ignition.
  - Switch on printer with the Print button (indicator lamp in button lights up).

Indicated on display:

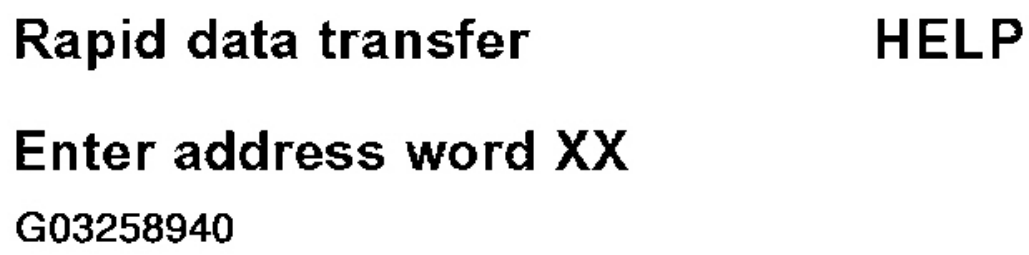


Fig. 140: Scan Tool Display - OBD For Central Locking System (1 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Address word for central locking: 35

Indicated on display:

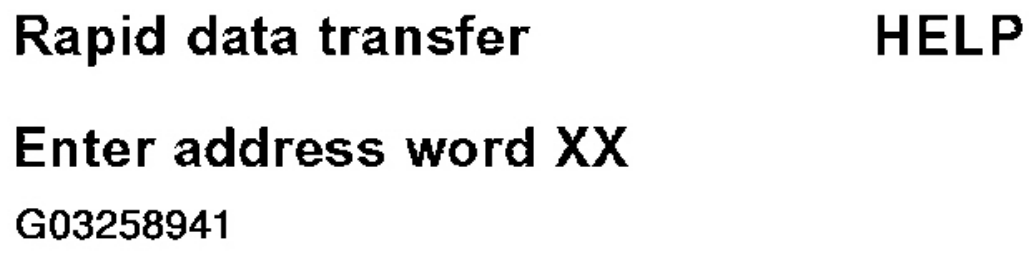


Fig. 141: Scan Tool Display - OBD For Central Locking System (2 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -3- and -5-.

Indicated on display after entering address word 35:

- Confirm entry with -Q- button.

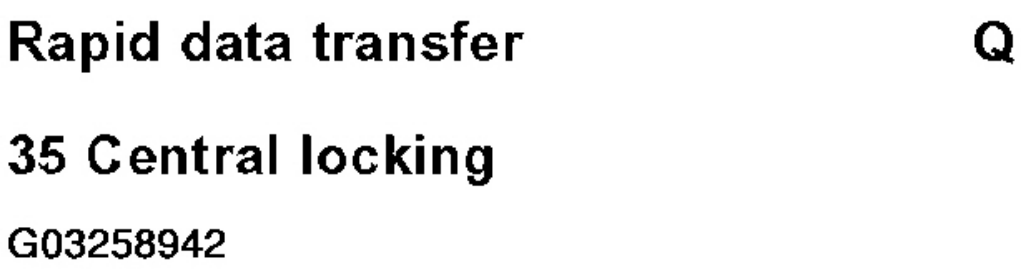


Fig. 142: Scan Tool Display - OBD For Central Locking System (3 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

and the following is indicated on display:

Indicated on display:

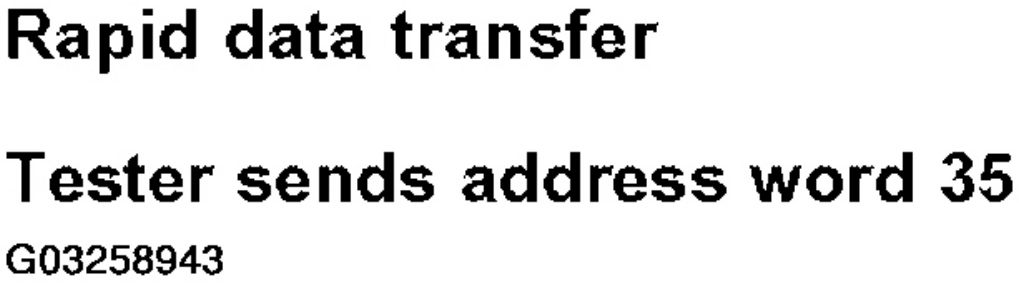


Fig. 143: Scan Tool Display - OBD For Central Locking System (4 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The scan tool V.A.G 1551 display will show the control unit identification, e.g.:

- Press --> button.

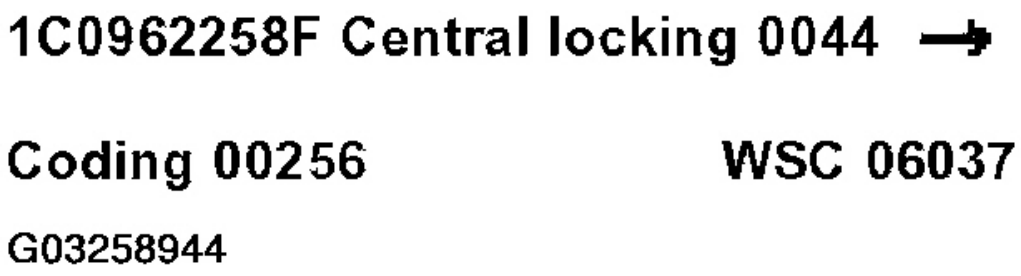


Fig. 144: Scan Tool Display - OBD For Central Locking System (5 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

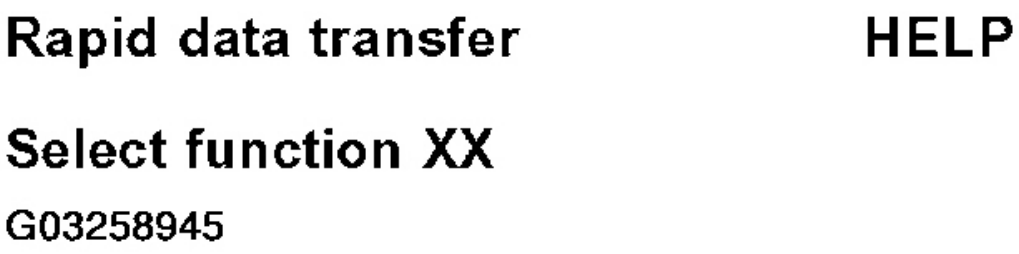


Fig. 145: Scan Tool Display - OBD For Central Locking System (6 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE:

- **If one of the malfunction messages opposite appears in the display, the possible causes of the malfunction can be printed out with the HELP button. See Fig. 146 .**

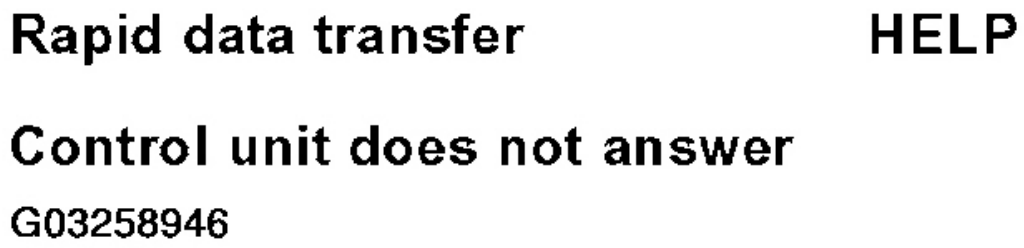


Fig. 146: Scan Tool Display - OBD For Central Locking System (7 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- **When doing this the ignition must be switched on.**

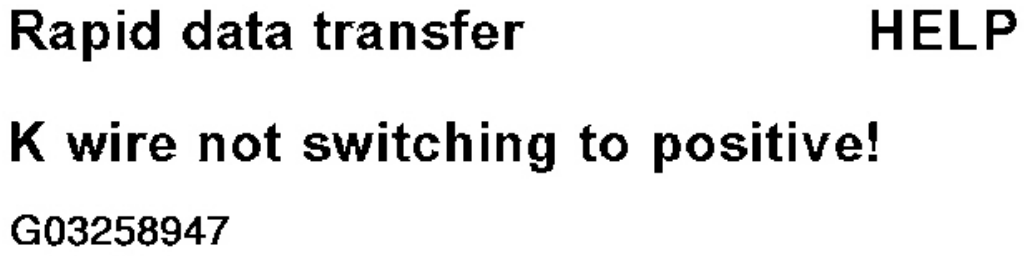


Fig. 147: Scan Tool Display - OBD For Central Locking System (8 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- **Malfunctions have occurred at the start of or during the program (external interference?).**

Fig. 148: Scan Tool Display - OBD For Central Locking System (9 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- **Check diagnosis wires as well as voltage supply and ground (GND) connection.**

Fig. 149: Scan Tool Display - OBD For Central Locking System (10 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

  - **After correcting the possible causes of the fault, once again enter the address word 35 for "Central locking" and confirm with the -Q- button.**

Indicated on display after entering the address word 35:

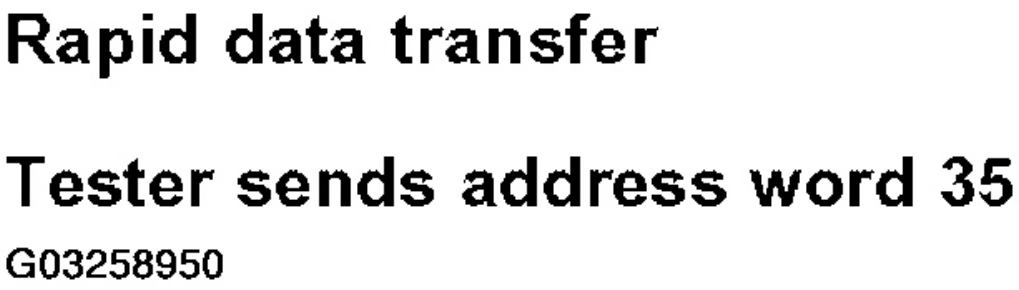


Fig. 150: Scan Tool Display - OBD For Central Locking System (11 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The scan tool V.A.G 1551 display will show the control unit identification, for example:

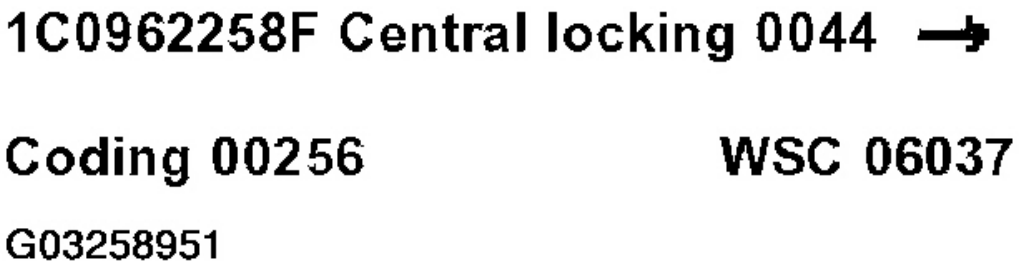


Fig. 151: Scan Tool Display - OBD For Central Locking System (12 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press --> button.

Indicated on display:

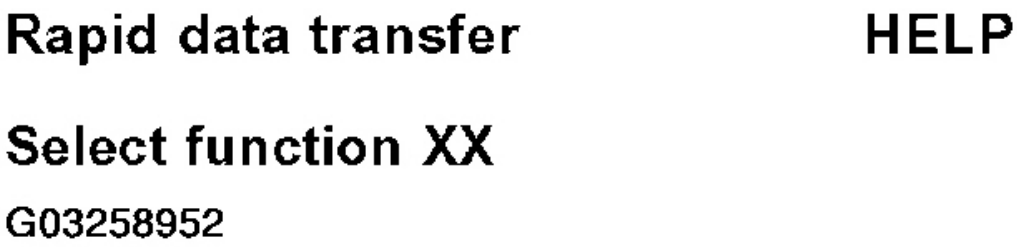


Fig. 152: Scan Tool Display - OBD For Central Locking System (13 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

List of selectable functions

LIST OF SELECTABLE FUNCTIONS

Function	See
01 - Checking control unit version	CONTROL UNIT VERSION, CHECKING (FUNCTION 01)
02 - Check DTC memory	DTC MEMORY, CHECKING (FUNCTION 02)
03 - Output Diagnosis Test Mode (DTM)	OUTPUT DIAGNOSTIC TEST MODE (DTM)
05 - Erasing DTC memory	DTC MEMORY, ERASING (FUNCTION 05)
06 - Ending output	END OUTPUT
07 - Code control unit	CENTRAL LOCKING CONTROL UNIT USING SCAN TOOL V.A.G 1551, CODING (FUNCTION 07)
08 - Read measured value block	MEASURED VALUE (DATA) BLOCK, READING
10 - Adaptation	RADIO FREQUENCY REMOTE CONTROL, PROGRAMMING IGNITION KEYS (ADAPTATION)

Indicated on display:

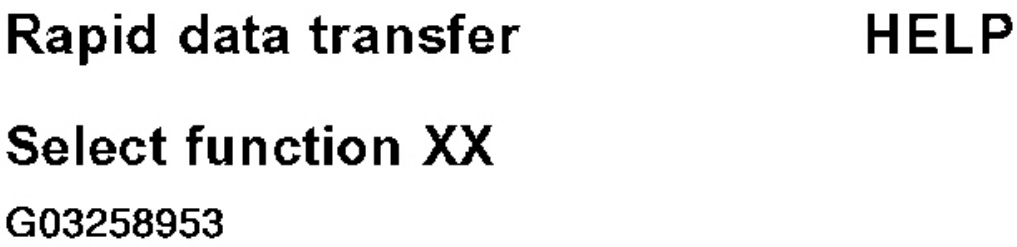


Fig. 153: Scan Tool Display - OBD For Central Locking System (14 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE:

- **A list of possible functions is printed out after pressing the HELP key.**
- **Do not select further functions, which can be printed out after pressing the HELP button.**
- **After the functions have been completed the V.A.G 1551 returns to the mentioned start position.**

CONTROL UNIT VERSION, CHECKING (FUNCTION 01)

- For connecting scan tool, see **SCAN TOOL, CONNECTING** . Also see **ON BOARD DIAGNOSIS (OBD) FOR THE CENTRAL LOCKING SYSTEM, INITIATING** .

Indicated on display:

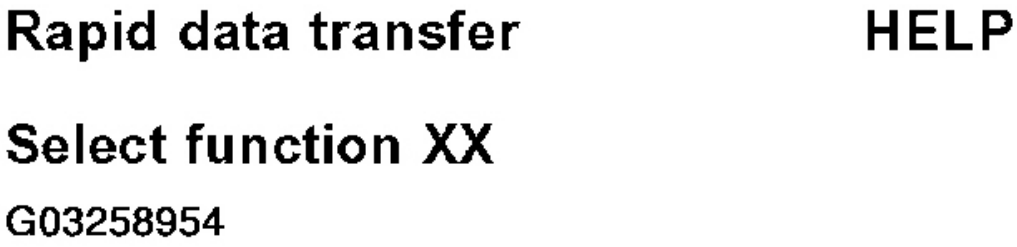


Fig. 154: Scan Tool Display - Function 01 (1 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -1-.

Indicated on display:

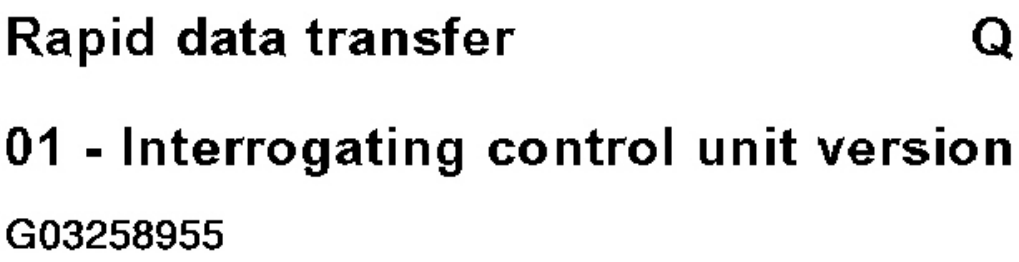


Fig. 155: Scan Tool Display - Function 01 (2 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

The scan tool V.A.G 1551 display will show the control unit identification, for example:

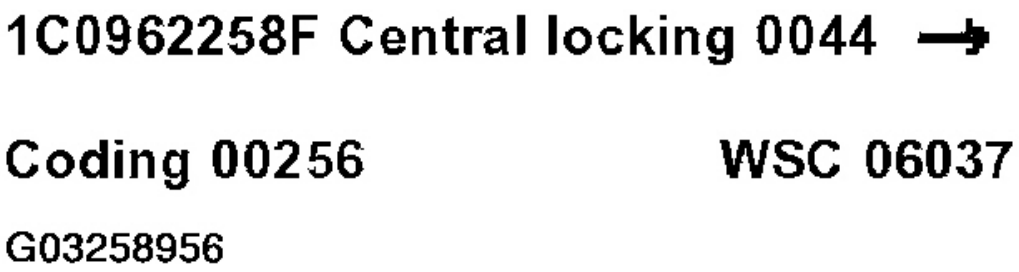


Fig. 156: Scan Tool Display - Function 01 (3 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Breakdown of the display:

- 1C0962258F = Part No. of the control unit (for latest control unit version see parts catalog)
- Central locking = System designation

- 0044 = Software version
- Coding 00256 = Coding variants
- WSC = Workshop code (Will be automatically stored in the control unit when entering the system.)
- Press --> button.

  Indicated on display:

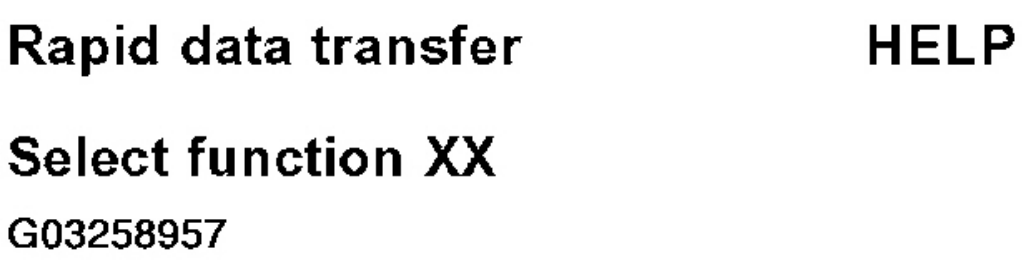


Fig. 157: Scan Tool Display - Function 01 (4 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -6- to end the output.

Indicated on display:

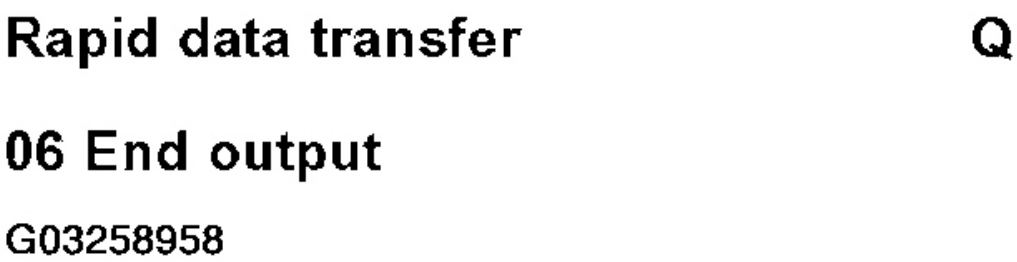


Fig. 158: Scan Tool Display - Function 01 (5 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

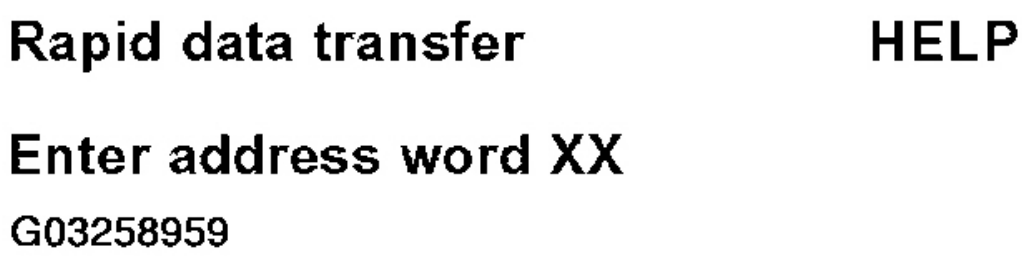


Fig. 159: Scan Tool Display - Function 01 (6 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Switch off ignition.
- Disconnect connection to scan tool V.A.G 1551.

CENTRAL LOCKING CONTROL UNIT USING SCAN TOOL V.A.G 1551, CODING (FUNCTION 07)

NOTE:

- **When supplied the control unit is pre-coded according to the vehicle equipment.**
- **Coding is performed using scan tool V.A.G 1551.**

- Connecting scan tool, see **SCAN TOOL, CONNECTING** . Initiating On Board Diagnosis (OBD), see **ON BOARD DIAGNOSIS (OBD) FOR THE CENTRAL LOCKING SYSTEM, INITIATING** .

Indicated on display:

- Press buttons -0- and -7- (with 07 the function "Code control unit" is selected).

Fig. 160: Scan Tool Display - Central Locking Control Unit Function 07 (1 Of 8)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

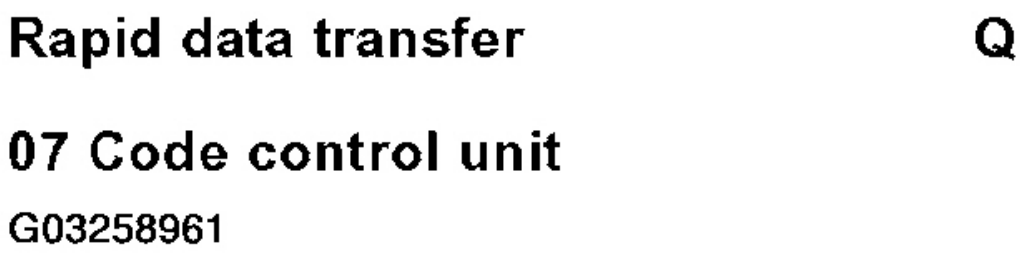


Fig. 161: Scan Tool Display - Central Locking Control Unit Function 07 (2 Of 8)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

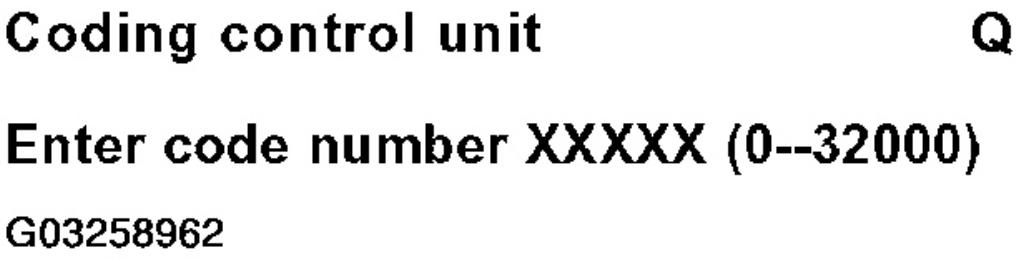


Fig. 162: Scan Tool Display - Central Locking Control Unit Function 07 (3 Of 8)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Enter code number according to table: The following code numbers (and others) will be accepted by the control unit, but these are also used with other vehicles, country variations or vehicle equipment. See **CENTRAL LOCKING CONTROL UNIT CODING** .

CENTRAL LOCKING CONTROL UNIT CODING

Vehicle equipment	Function	Code number
Central locking 2- Window regulator	Single door unlocking	00256
	All door opening	00257
Central locking 2- Window regulator and memory	Single door unlocking	00258
	All door opening	00259

- Confirm entry with -Q- button.

Control unit identification number with relevant letter index, code number and workshop code (dealership number) will be displayed.

If the contents of the display are as shown then the coding is successful.

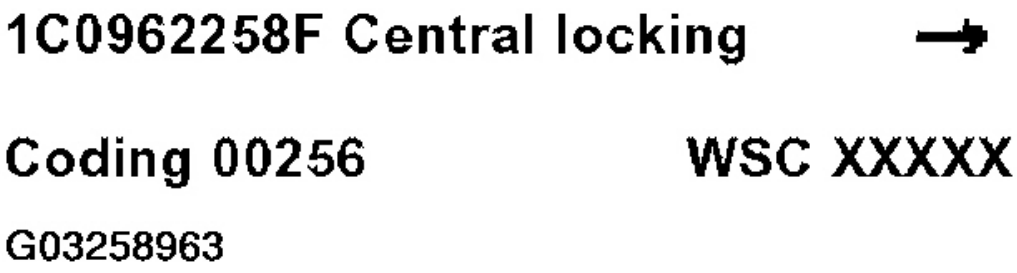


Fig. 163: Scan Tool Display - Central Locking Control Unit Function 07 (4 Of 8)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

If an incorrect code number has been entered and accepted by the control unit (e.g. 04096), a display will subsequently follow indicating that no communication has taken place with for example rear door control unit.

Indicated on display:

Fig. 164: Scan Tool Display - Central Locking Control Unit Function 07 (5 Of 8)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Repeat coding.

If the code number entered, is not accepted by the control unit, the display will show:

Indicated on display:

Fig. 165: Scan Tool Display - Central Locking Control Unit Function 07 (6 Of 8)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

In this case the control unit has not been programmed with the relevant data for the vehicle.

A check must then be completed to see if the correct control unit for the vehicle has been installed (compare Part No. and letter index), or whether an incorrect code number has been entered.

- Repeat coding.

If the control unit cannot be coded (correct control unit, correct code number), the control unit is faulty.

Ending function:

- Press --> button.

Indicated on display:

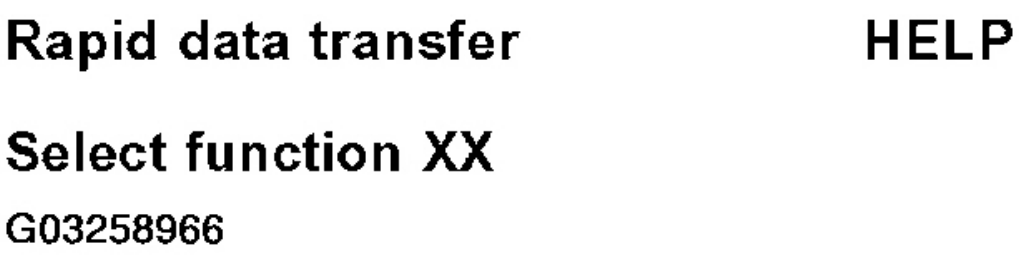


Fig. 166: Scan Tool Display - Central Locking Control Unit Function 07 (7 Of 8)

Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -6- to end the output.
- Confirm entry with -Q- button.

Indicated on display:

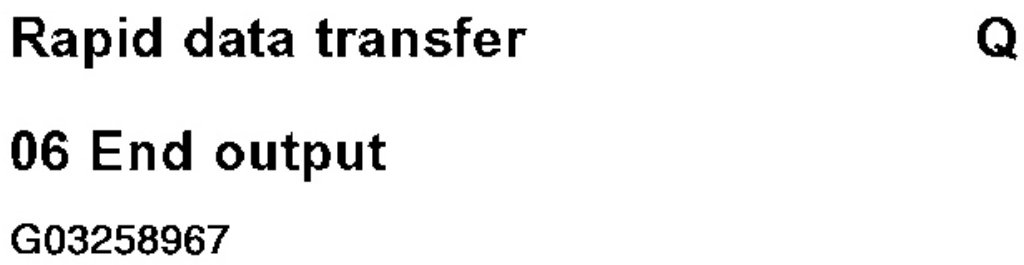


Fig. 167: Scan Tool Display - Central Locking Control Unit Function 07 (8 Of 8)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Switch off ignition.
- Disconnect connection to scan tool V.A.G 1551.

DTC MEMORY, CHECKING (FUNCTION 02)

NOTE: The vehicle system tester V.A.G 1552 can be used instead of the scan tool V.A.G 1551, however a print-out is not possible.

- Connecting scan tool, see **SCAN TOOL, CONNECTING** . Initiating On Board Diagnosis (OBD), see **ON BOARD DIAGNOSIS (OBD) FOR THE CENTRAL LOCKING SYSTEM, INITIATING** .

Indicated on display:

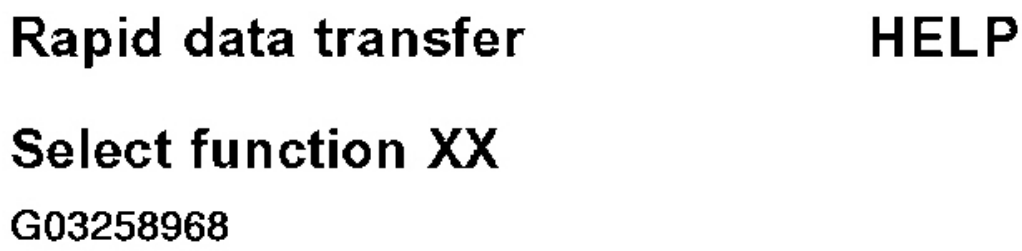


Fig. 168: Scan Tool Display - Central Locking Control Unit Function 02 (1 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -2-. (Function "Interrogate DTC memory" is selected with 02).

Indicated on display:

Fig. 169: Scan Tool Display - Central Locking Control Unit Function 02 (2 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press Print button.
- Confirm entry with -Q- button.

The number of stored malfunctions appears in the display.

Fig. 170: Scan Tool Display - Central Locking Control Unit Function 02 (3 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The stored malfunctions will be displayed and printed out one after the other.

NOTE: If a malfunction is recognized:

- **Correct malfunction**
- **Erase DTC memory (function 05)**
- **Interrogate DTC memory again (function J 02).**

- The malfunctions printed out can be corrected with aid of Diagnostic Trouble Code (DTC) table, from, see **DIAGNOSTIC TROUBLE CODE (DTC) TABLE** .
- The function **MEASURED VALUE (DATA) BLOCK, READING** and **DISPLAY GROUP OVERVIEW** are additional aids.

The measured value block is divided into 10 display group numbers. The assignment of the individual display zones can be taken from the display group overview see **DISPLAY GROUP OVERVIEW** .

If "No fault detected" is displayed the program will return to the initial position after pressing the --> button.

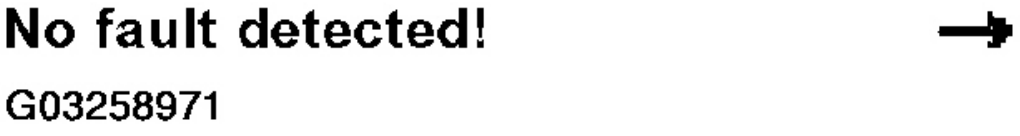


Fig. 171: Scan Tool Display - Central Locking Control Unit Function 02 (4 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

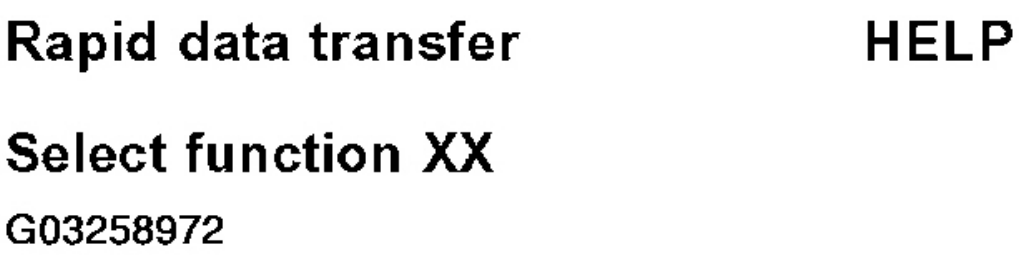


Fig. 172: Scan Tool Display - Central Locking Control Unit Function 02 (5 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

If something else is displayed:

See Scan tool operating instructions

- Press buttons -0- and -6- to end the output.

Indicated on display:

Fig. 173: Scan Tool Display - Central Locking Control Unit Function 02 (6 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

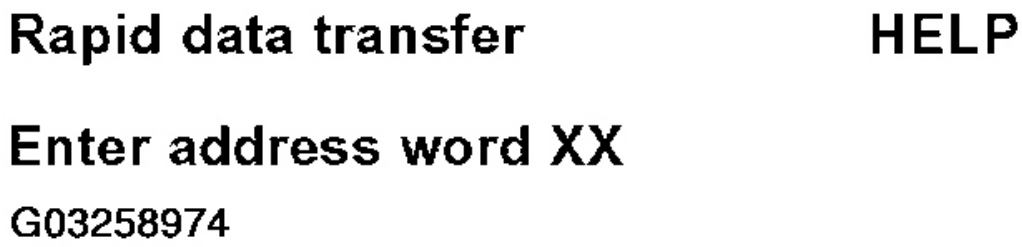


Fig. 174: Scan Tool Display - Central Locking Control Unit Function 02 (7 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Switch off ignition.
- Disconnect connection to scan tool V.A.G 1551.

DTC MEMORY, ERASING (FUNCTION 05)

NOTE: The vehicle system tester V.A.G 1552 can be used instead of the scan tool V.A.G 1551; however a print-out is not possible.

- Connecting scan tool, see **SCAN TOOL, CONNECTING** . Initiating On Board Diagnosis (OBD), see **ON BOARD DIAGNOSIS (OBD) FOR THE CENTRAL LOCKING SYSTEM, INITIATING** .

Requirements:

- Malfunction is corrected
- Functional check has been carried out
- DTC memory interrogated again

DTC memory, erasing

Indicated on display:

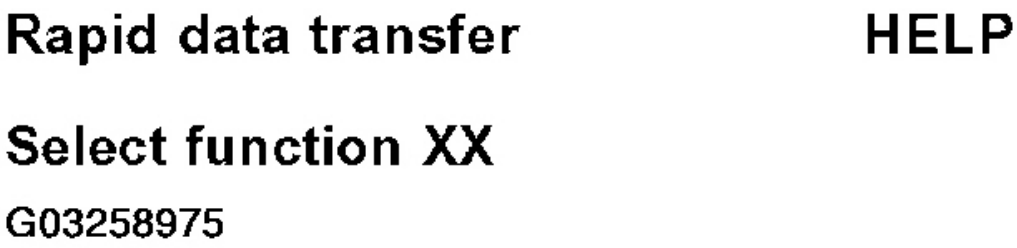


Fig. 175: Scan Tool Display - Central Locking Control Unit Function 05 (1 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -5- (the function "Erase DTC memory" is entered with 05).

Indicated on display:

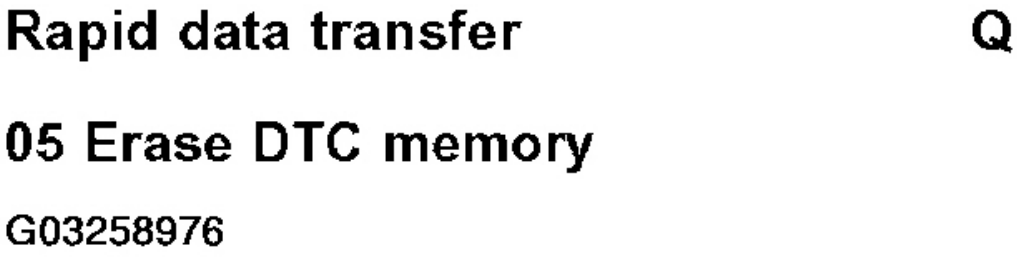


Fig. 176: Scan Tool Display - Central Locking Control Unit Function 05 (2 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

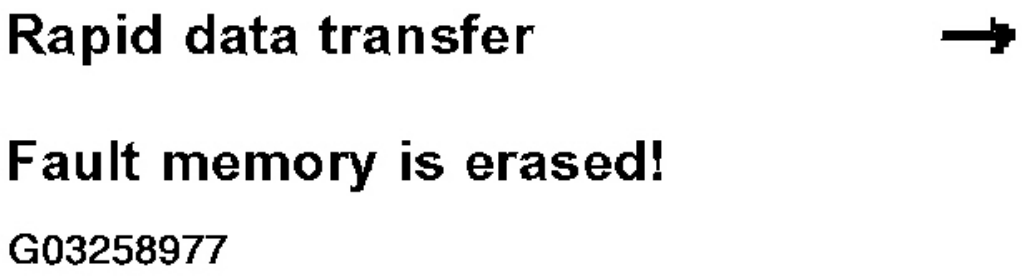


Fig. 177: Scan Tool Display - Central Locking Control Unit Function 05 (3 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press --> button.

Indicated on display:

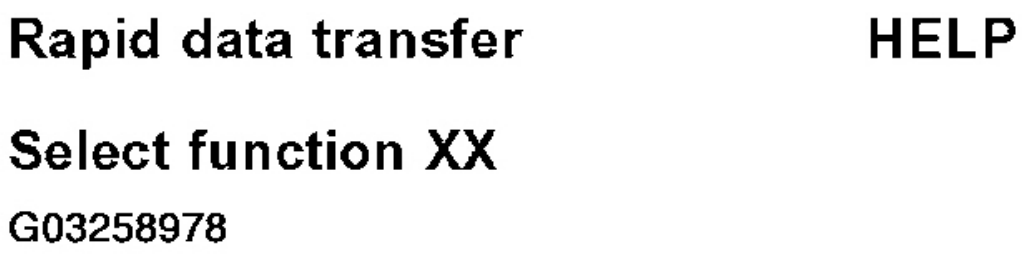


Fig. 178: Scan Tool Display - Central Locking Control Unit Function 05 (4 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE:

- **If this appears in the display, the test sequence has malfunctioned. See Fig. 179 .**
- **Adhere exactly to test sequence: first of all check DTC memory, then erase memory.**

Fig. 179: Scan Tool Display - Central Locking Control Unit Function 05 (5 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -6- to end the output.

Indicated on display:

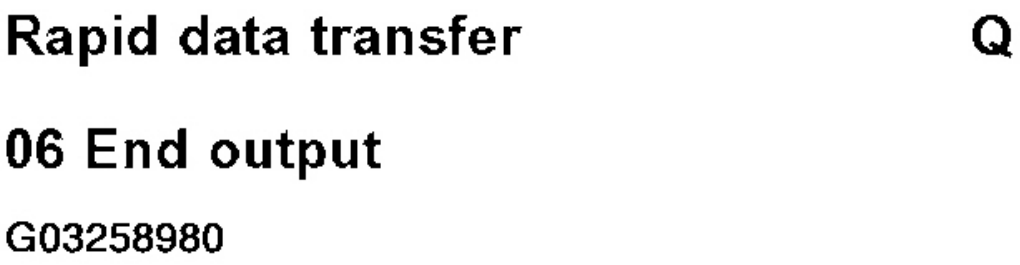


Fig. 180: Scan Tool Display - Central Locking Control Unit Function 05 (6 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

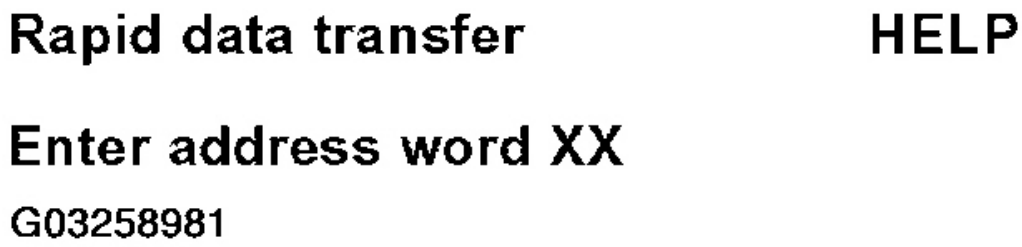


Fig. 181: Scan Tool Display - Central Locking Control Unit Function 05 (7 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Switch off ignition.
- Disconnect connection to scan tool V.A.G 1551.

END OUTPUT

- Press buttons -0- and -6- to end the output.

Indicated on display:

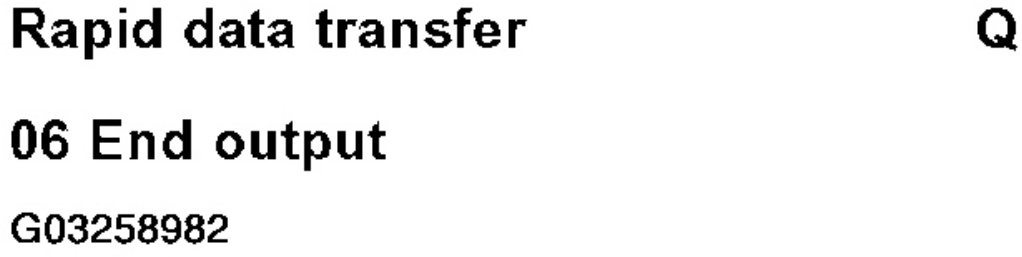


Fig. 182: Scan Tool Display - Central Locking Control Unit Function 06 (1 Of 2)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

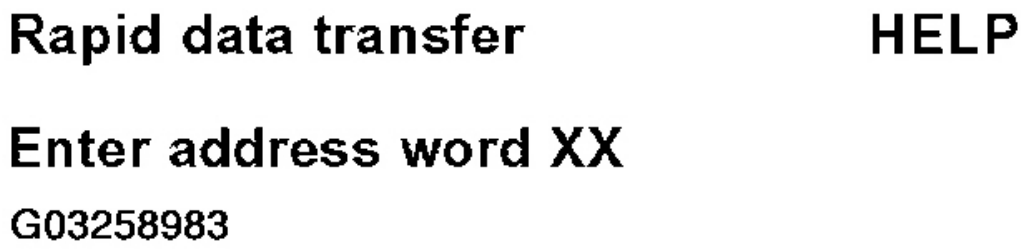


Fig. 183: Scan Tool Display - Central Locking Control Unit Function 06 (2 Of 2)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Switch off ignition.
- Disconnect connection to scan tool V.A.G 1551.

DIAGNOSTIC TROUBLE CODE (DTC) TABLE

NOTE:

- **The Diagnostic Trouble Code (DTC) tables are listed according to the 5 digit fault code on the left.**
- **Explanation of the malfunction types (e.g. "open circuit/short to ground (GND)"):**

  See Scan tool operating instructions

- **Before replacing components indicated as being faulty, check the wiring and connectors to these components as well as the ground (GND) connections using Electrical Wiring Diagram. This is particularly relevant if malfunctions are output as "occurring sporadically" (SP).**
- **The DTCs displayed can be located using the test table.**

DIAGNOSTIC TROUBLE CODE (DTC) - CENTRAL LOCKING (00000, 00668 & 00849)

V.A.G 1551 print-out	Possible cause	Corrective action
00000 No fault recognized	If "No fault recognized" appears after performing repairs, the On Board Diagnosis (OBD) is terminated.	
00668 Vehicle voltage terminal 30 Signal too small	• Battery discharged • Wiring or connections faulty	• Battery charging • Check wiring and connections referring to Electrical Wiring Diagram
00849 S-on ignition/starter	• Terminal 15 OK, but S-terminal	• Read measured value block; Display group number 006, see **BREAK DOWN OF**

switch -D- undefined switching status	faulty • Wiring or connections faulty • Ignition/starter lock faulty	**DISPLAY CONTENT FOR DISPLAY GROUP NUMBER 006** , display zone 1 • Check wiring and connections referring to Electrical Wiring Diagram • Replace ignition/starter lock

DIAGNOSTIC TROUBLE CODE (DTC) - CENTRAL LOCKING (00928)

V.A.G 1551 print-out	Possible cause	Corrective action
00928 Drivers side central locking lock unit -F220- Implausible signal Incorrect activation	• Wiring or connections faulty • No voltage supply for central locking on driver's door • Lock unit mechanics and operating components are stiff/partially seized • Drivers side central locking lock unit -F220- faulty • Incorrect lock unit installed (1)	• Check wiring and connections referring to Electrical Wiring Diagram • Check voltage supply for central locking lock unit in driver's door (lower left footwell) or at lock unit • Check lock unit mechanical components and operating components and make serviceable • Replace drivers side central locking lock unit -F220- • Replace lock unit
(1) If a Rest of World lock is installed in a USA vehicle, there is a safe feedback via an additional switch (safe switch).		

DIAGNOSTIC TROUBLE CODE (DTC) - CENTRAL LOCKING (00929)

V.A.G 1551 print-out	Possible cause	Corrective action
00929 Front passengers side central locking lock unit -F221- Implausible signal Incorrect activation	• Wiring or connections faulty • No voltage supply for central locking on front passengers door • Lock unit mechanics and operating components are stiff/partially seized • Front passengers side central locking lock unit -F221- faulty • Incorrect lock unit installed (1)	• Check wiring and connections referring to Electrical Wiring Diagram • Check voltage supply for central locking lock unit in driver's door (lower right footwell) or at lock unit • Check lock unit mechanical components and operating components and make serviceable • Replace front passengers side central locking lock unit -F221- • Replace lock unit
(1) If a Rest of World lock is installed in a USA vehicle, there is a safe feedback via an additional switch (safe switch).		

DIAGNOSTIC TROUBLE CODE (DTC) - CENTRAL LOCKING (00945 & 00946)

V.A.G 1551 print-out	Possible cause	Corrective action
00945 Crash sensor -G190-(1) Short to ground (GND)	• Control module faulty	• Replace control module • Output can be checked in Output Diagnostic Test Mode (DTM) for airbag.
00946 Interior light -W- Short to positive	• Wiring or connections faulty • Interior light or one of the reading lights are faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Replace interior light or faulty reading light
(1) Sensor is internal to control module and cannot be physically checked.		

DIAGNOSTIC TROUBLE CODE (DTC) - CENTRAL LOCKING (00947 & 00951)

V.A.G 1551 print-out	Possible cause	Corrective action
00947 Tailgate/trunk lid remote control switch -E188- Short to ground (GND)	• Wiring or connections faulty • Tailgate/trunk lid remote control switch -E188 faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Replace tailgate/trunk lid remote control switch -E188-
00951 Tailgate/trunk lid remote release motor relay -J398- (only for USA) Short to positive	• Wiring or connections faulty • Tailgate/trunk lid remote release motor relay -J398- faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Replace tailgate/trunk lid remote release motor relay -J398-

DIAGNOSTIC TROUBLE CODE (DTC) - CENTRAL LOCKING (00953 & 00954)

V.A.G 1551 print-out	Possible cause	Corrective action
00953 Time limit interior light Undefined switching status	• Wiring or connections faulty • Interior light, reading lights and luggage compartment connections faulty • Interior light faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Check wiring and connections referring to Electrical Wiring Diagram • Replace interior light
00954 Starter inhibitor relay -J433-(1) , (2) Short to positive	• Wiring or connections faulty • Starter inhibitor relay -J433- faulty (USA)	• Check wiring and connections referring to Electrical Wiring Diagram • Replace starter inhibitor relay -J433- (USA)

(1) Is not displayed in scan tool display at present

(2) Only vehicles for USA or vehicles without immobilizer

DIAGNOSTIC TROUBLE CODE (DTC) - CENTRAL LOCKING (00955, 00956, 00957 & 00958)

V.A.G 1551 print-out	Possible cause	Corrective action
00955 Key 1 Adaptation limit exceeded	• Key not adapted • Key has been operated more than 200 times while outside range of vehicle receiver	• Read measured value block; Display group number 009, see **BREAK DOWN OF DISPLAY CONTENT FOR DISPLAY GROUP NUMBER 009** .
00956 Key 2 Adaptation limit exceeded		
00957 Key 3 Adaptation limit exceeded		
00958 Key 4 Adaptation limit exceeded		

DIAGNOSTIC TROUBLE CODE (DTC) - CENTRAL LOCKING (01030)

V.A.G 1551 print-out	Possible cause	Corrective action
01030 Key button CL driver's side, locking Implausible signal Short to ground (GND)(1)	• Wiring or connections faulty • Lock cylinder sticks • Wiring or connections faulty • Micro-switch driver's side central locking lock unit -F220- faulty	• Read measured value block; Display group number 001, see **DISPLAY GROUP OVERVIEW** , display zone 3 • Check lock cylinder installation • Replace drivers side central locking lock unit -F220-
(1) DTC is set when operated longer than 5 minutes		

DIAGNOSTIC TROUBLE CODE (DTC) - CENTRAL LOCKING (01031)

V.A.G 1551 print-out	Possible cause	Corrective action
01031 Key button CL driver's side, unlocking Implausible signal Short to ground (GND) (1)	• Wiring or connections faulty • Lock cylinder sticks • Wiring or connections faulty • Micro-switch driver's side central locking lock unit -F220- faulty	• Read measured value block; Display group number 001, see **DISPLAY GROUP OVERVIEW** , display zone 3 • Check lock cylinder installation • Replace drivers side central locking lock unit -F220-

(1) DTC is set when operated longer than 5 minutes

DIAGNOSTIC TROUBLE CODE (DTC) - CENTRAL LOCKING (01032)

V.A.G 1551 print-out	Possible cause	Corrective action
01032 Key button CL front passenger's side, locking Implausible signal Short to ground (GND)(1)	• Wiring or connections faulty • Lock cylinder sticks • Wiring or connections faulty • Micro-switch front passenger's side central locking lock unit -F221- faulty	• Read measured value block; Display group number 002, see **BREAK DOWN OF DISPLAY CONTENT FOR DISPLAY GROUP NUMBER 002** , display zone 3 • Check lock cylinder installation • Replace front passengers side central locking lock unit -F221-
(1) DTC is set when operated longer than 5 minutes		

DIAGNOSTIC TROUBLE CODE (DTC) - CENTRAL LOCKING (01033)

V.A.G 1551 print-out	Possible cause	Corrective action
01033 Key button CL front passenger's side, unlocking Implausible signal Short to ground (GND)(1)	• Wiring or connections faulty • Lock cylinder sticks • Wiring or connections faulty • Micro-switch front passenger's side central locking lock unit -F221- faulty	• Read measured value block; Display group number 002, see **BREAK DOWN OF DISPLAY CONTENT FOR DISPLAY GROUP NUMBER 002** , display zone 3 • Check lock cylinder installation • Replace front passengers side central locking lock unit -F221-
(1) DTC is set when operated longer than 5 minutes		

DIAGNOSTIC TROUBLE CODE (DTC) - CENTRAL LOCKING (01038 & 01044)

V.A.G 1551 printout	Possible cause	Corrective action
01038 Central locking thermo-protection(1)	• Wiring or connections faulty • Door lock stiff	• Read measured value block; Display group number 005, see **BREAK DOWN OF DISPLAY CONTENT FOR DISPLAY GROUP NUMBER 005** , display zone 1
01044 Control unit incorrectly coded(1)	• Control unit installed does not correspond to the vehicle equipment • Control unit supplied is	• Replace control unit • Inform part supplier of the problem

	not programmed or not fully programmed	

(1) It will not be displayed in scan tool display

DIAGNOSTIC TROUBLE CODE (DTC) - CENTRAL LOCKING (01131 & 01134)

V.A.G 1551 print-out	Possible cause	Corrective action
01131 Turn signal lights activation undefined switching status	• Wiring or connections faulty • Turn signal faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Performing Output Diagnostic Test Mode (DTM), see **OUTPUT DIAGNOSTIC TEST MODE (DTM)** • Replace turn signal
01134 Alarm horn -H12- undefined switching status	• Wiring or connections faulty • Fuse faulty • Alarm horn -H12- faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Performing Output Diagnostic Test Mode (DTM), see **OUTPUT DIAGNOSTIC TEST MODE (DTM)** • Replace fuse • Replace alarm horn -H12-

DIAGNOSTIC TROUBLE CODE (DTC) - CENTRAL LOCKING (01135 & 01141)

V.A.G 1551 print-out	Possible cause	Corrective action
01135 Interior monitoring sensors Open circuit Defective	• Wiring or connections faulty • Sensors for monitoring interior not installed • Interior monitoring sensors faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Check installation • Read measured value block; Display group number 005, see **BREAK DOWN OF DISPLAY CONTENT FOR DISPLAY GROUP NUMBER 005** , display zone 4 • Replace interior monitoring sensors
01141 Luggage compartment unlocking switch - E165- Implausible signal	• Wiring or connections faulty • Luggage compartment unlocking switch - E165- faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Replace luggage compartment unlocking switch -E165- • Read measured value block; Display group number 006, see **BREAK DOWN OF DISPLAY CONTENT FOR DISPLAY GROUP NUMBER 006** , display zone 1

DIAGNOSTIC TROUBLE CODE (DTC) - CENTRAL LOCKING (01179)

V.A.G 1551	Possible cause	Corrective action

printout		
01179 Incorrect programming of keys(1)	• Key adaptation (function 10) has not been performed correctly	• See description for adapting keys with radio wave remote control, see **RADIO FREQUENCY REMOTE CONTROL, PROGRAMMING IGNITION KEYS (ADAPTATION)** • Read measured value block; Display group number 009, see **BREAK DOWN OF DISPLAY CONTENT FOR DISPLAY GROUP NUMBER 009** , display zone 3
(1) It will not be displayed in scan tool display		

DIAGNOSTIC TROUBLE CODE (DTC) - CENTRAL LOCKING (01355)

V.A.G 1551 printout	Possible cause	Corrective action
01355 Signal; All windows open Short to positive	• Wiring or connections faulty • Lock mechanism mechanics stiff or lock cylinder stiff • Micro-switch driver's side central locking lock unit -F220- faulty • Micro-switch front passenger's side central locking lock unit -F221- faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Check lock mechanism mechanics and return to serviceable condition • Replace lock cylinder • Read measured value block; Display group number 001, see **DISPLAY GROUP OVERVIEW** , display zone 1 for driver's side. Display group number 002, see **BREAK DOWN OF DISPLAY CONTENT FOR DISPLAY GROUP NUMBER 002** , display zone 1 for front passengers side • Replace drivers side central locking lock unit -F220- • Replace front passengers side central locking lock unit -F221-

DIAGNOSTIC TROUBLE CODE (DTC) - CENTRAL LOCKING (01356)

V.A.G 1551 print-out	Possible cause	Corrective action
01356 Signal; Close all windows and sliding/tilting sunroof Short to positive	• Wiring or connections faulty • Lock mechanism mechanics stiff or lock cylinder stiff • Micro-switch driver's side central locking lock unit -F220- faulty • Micro-switch front	• Check wiring and connections referring to Electrical Wiring Diagram • Check lock mechanism mechanics and return to serviceable condition • Replace lock cylinder • Read measured value block; Display group number 001, see **DISPLAY GROUP OVERVIEW** , display zone 1 for driver's side. Display group number 002, see **BREAK DOWN OF DISPLAY CONTENT FOR DISPLAY**

	passenger's side central locking lock unit -F221- faulty	**GROUP NUMBER 002** , display zone 1 for front passengers side • Replace drivers side central locking lock unit -F220- • Replace front passengers side central locking lock unit -F221-

DIAGNOSTIC TROUBLE CODE (DTC) - CENTRAL LOCKING (01356)

V.A.G 1551 print-out	Possible cause	Corrective action
01365 Interior locking switch, driver's side -E150- Interior locking switch, front passenger's side -E198- Short to ground (GND)	• Wiring or connections faulty • Interior locking switch, driver's side -E150- faulty • Interior locking switch, front passenger's side -E198- faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Read measured value block; Display group number 001, see **DISPLAY GROUP OVERVIEW** , display zone 2 • Read measured value block; Display group number 002, see **BREAK DOWN OF DISPLAY CONTENT FOR DISPLAY GROUP NUMBER 002** , display zone 2 • Replace interior locking switch, driver's side -E150- • Replace interior locking switch, front passenger's side -E198-

DIAGNOSTIC TROUBLE CODE (DTC) - CENTRAL LOCKING (01389, 01483 & 65535)

V.A.G 1551 print-out	Possible cause	Corrective action
01389 Open tailgate/trunk lid unlocking switch -F124- Short to ground (GND)(1)	• Wiring or connections faulty • Lock mechanism mechanics stiff or lock cylinder stiff	• Check wiring and connections referring to Electrical Wiring Diagram • Check lock mechanism mechanics and return to serviceable condition • Replace lock cylinder • Read measured value block; Display group number 006, see **BREAK DOWN OF DISPLAY CONTENT FOR DISPLAY GROUP NUMBER 006** , display zone 3
01483 Activation of tailgate remote release undefined switching status	• Wiring or connections faulty	• Check wiring and connections referring to Electrical Wiring Diagram
65535 Control unit faulty	• Control unit faulty	• Replace control unit
(1) is set when operated longer than 5 minutes		

OUTPUT DIAGNOSTIC TEST MODE (DTM)

The components displayed in the Output Diagnostic Test Mode (DTM) can differ depending upon the equipment fitted to the vehicle. For example on vehicles without ATA there will be no step "1" as listed in the table below.

The Output Diagnostic Test Mode (DTM) activates the components in **DIAGNOSTIC TEST MODE (DTM)** in the stated sequence.

DIAGNOSTIC TEST MODE (DTM)

Step	Display in tester	Reaction
1	Alarm horn (for anti-theft alarm)	• Horn sounds continuously
2	Turn signal lights activation (for anti-theft alarm)	• Activated continuously (lights up continously)
3	Interior light, reading lights	• Interior and reading lights are activated
4	Signal "Close" sunroof	• Sliding roof closes(1)
5	Central locking "Safe" warning lamp -K133-	• "Safe" -LED lights up
6	Instrument illumination	• Instrument illumination active(2)
7	END	• Information: End of regular final control test

(1) When performing Output Diagnostic Test Mode (DTM) the "signal close sliding sunroof", the ignition and S-terminal must be inactive (no key in ignition/starter switch) and one of the front doors must be open.

(2) Switch in operating unit

Work sequence

- Connecting scan tool, see **SCAN TOOL, CONNECTING** . Initiating On Board Diagnosis (OBD), see **ON BOARD DIAGNOSIS (OBD) FOR THE CENTRAL LOCKING SYSTEM, INITIATING** .

Indicated on display:

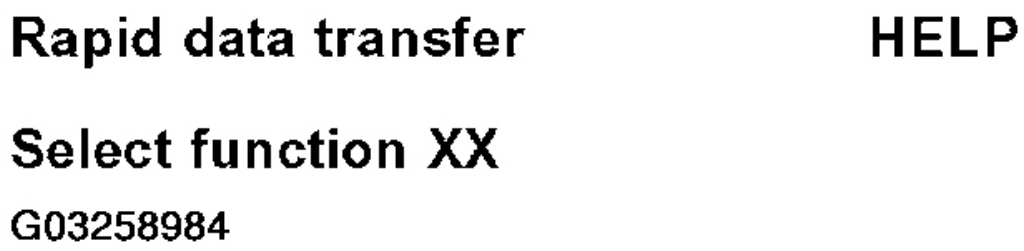


Fig. 184: Scan Tool Display - Central Locking DTM (1 Of 3)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Operate scan tool taking into account the information on the display:
- Input 03 for "Final control diagnosis" function.
- Switch off ignition and remove ignition key from ignition lock.

Indicated on display:

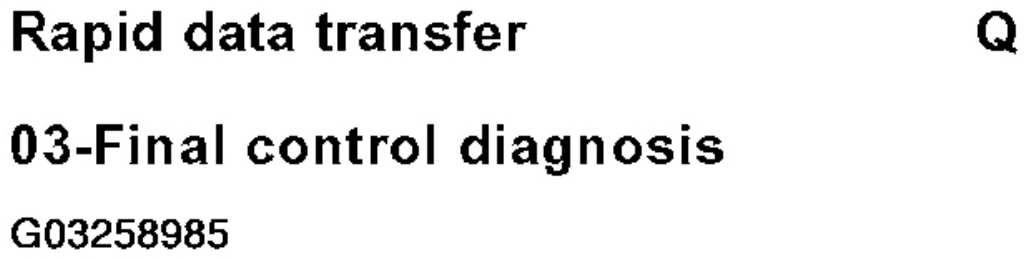


Fig. 185: Scan Tool Display - Central Locking DTM (2 Of 3)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

Fig. 186: Scan Tool Display - Central Locking DTM (3 Of 3)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Switch from test step to test step using the --> key: See table on **OUTPUT DIAGNOSTIC TEST MODE (DTM)** .

The Output Diagnostic Test Mode (DTM) can be aborted by pressing the -C- button.

- Press --> button.

If a component does not function:

- Continue Output Diagnostic Test Mode (DTM) to the end.

Reintroducing Final control diagnosis (Output Diagnostic Test Mode (DTM)) is possible only after terminating the On Board Diagnosis (OBD) and switching the ignition off and on again.

MEASURED VALUE (DATA) BLOCK, READING

- Connecting scan tool, see **SCAN TOOL, CONNECTING** . Initiating On Board Diagnosis (OBD), see **ON BOARD DIAGNOSIS (OBD) FOR THE CENTRAL LOCKING SYSTEM, INITIATING** .

The measured value block is divided into 10 display group numbers. The assignment of the individual display zones can be taken from the display group overview. See **DISPLAY GROUP OVERVIEW** .

Indicated on display:

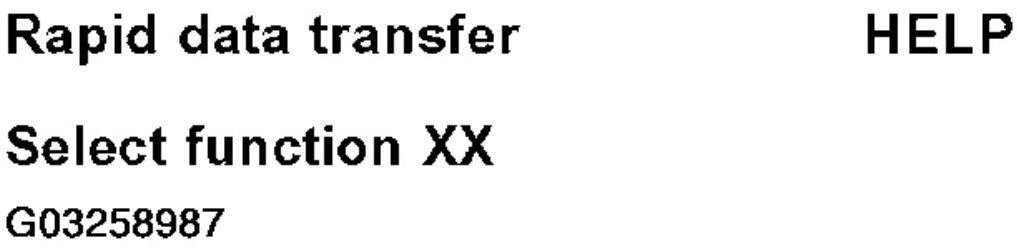


Fig. 187: Scan Tool Display - Central Locking Measured Value (Data) Block (1 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -8- (08 initiates function "Read measured value block").

Indicated on display:

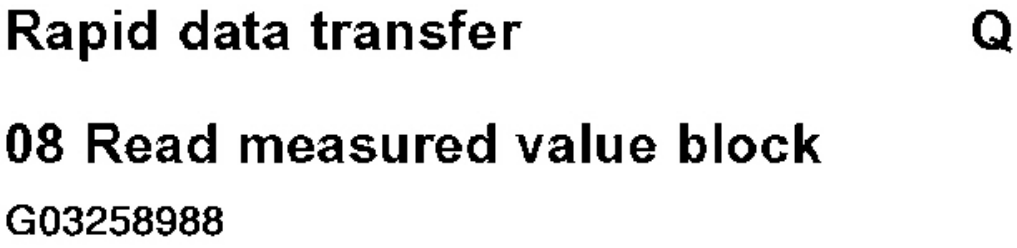


Fig. 188: Scan Tool Display - Central Locking Measured Value (Data) Block (2 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

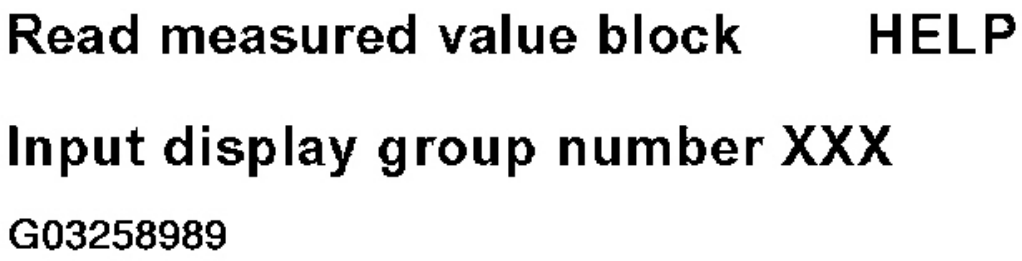


Fig. 189: Scan Tool Display - Central Locking Measured Value (Data) Block (3 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE: The display group number 001 is an example, to illustrate the sequence.

- Press buttons -0-, -0- and -1- for "Display group number 1" and confirm entry with -Q- button.

Indicated on display: (1 ...4 - display zones)

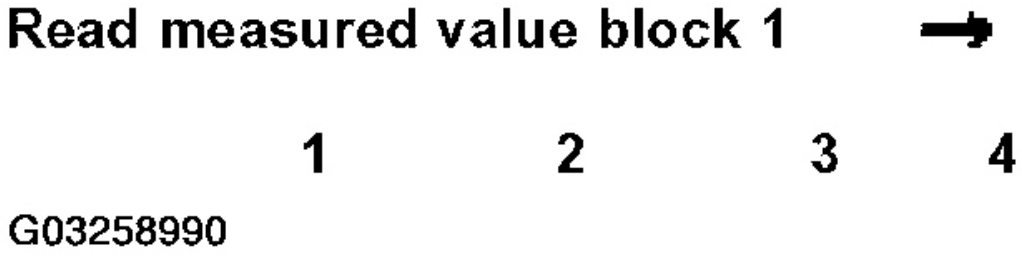


Fig. 190: Scan Tool Display - Central Locking Measured Value (Data) Block (4 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE: To change to another display group proceed as shown in SCAN TOOL DISPLAY GROUP CHART .

SCAN TOOL DISPLAY GROUP CHART

Display group	V.A.G 1551	V.A.G 1552
Higher	Press button 3	Press "UPPER ARROW" button

Lower	Press button 1	Press "UPPER ARROW" button
Skip	Press button C	Press button C

- Displayed after pressing -C- button.

Indicated on display:

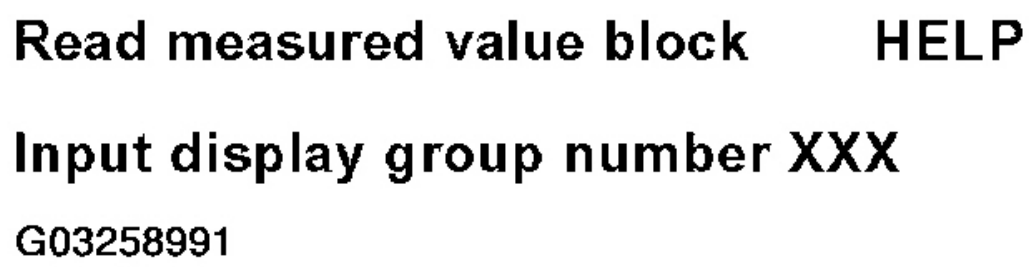


Fig. 191: Scan Tool Display - Central Locking Measured Value (Data) Block (5 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Now enter the display group number required.

DISPLAY GROUP OVERVIEW

Break down of display content for display group number 001

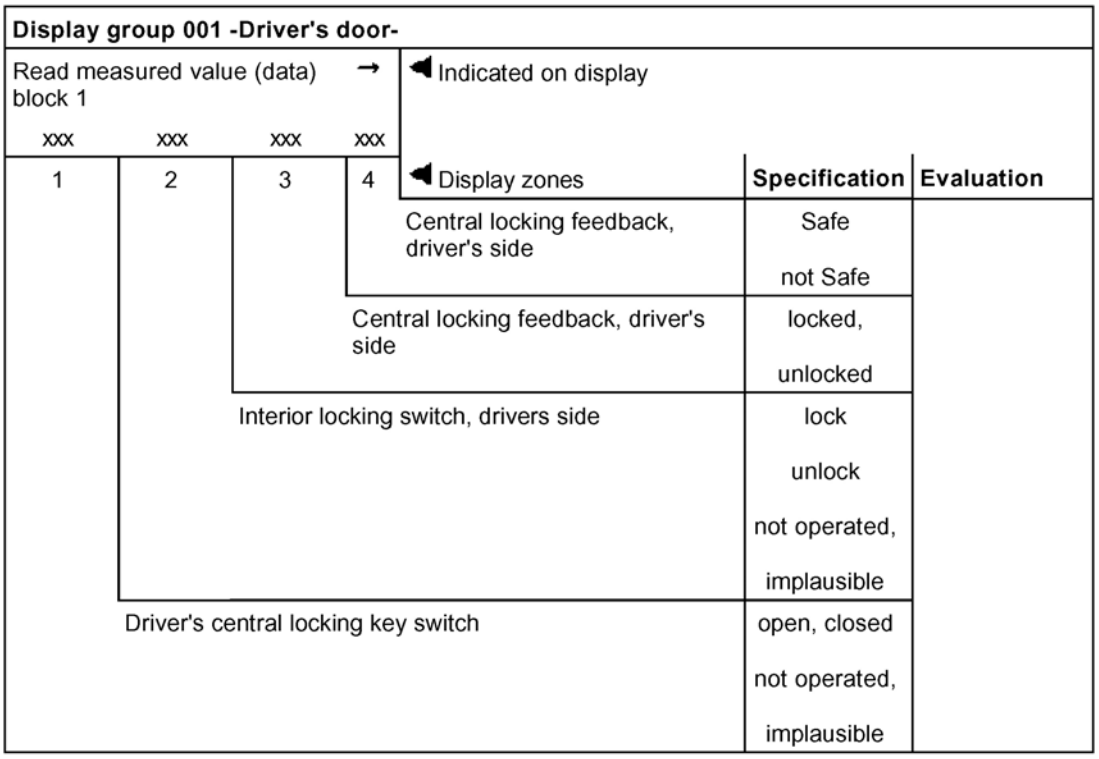


Fig. 192: Break Down Display Group 001 Chart - Central Locking
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 001

EVALUATING DISPLAY GROUP NUMBER 001 - CENTRAL LOCKING

Display zone	Designation	Display content	Corrective action
1	Key switch, driver's side	open closed not operated implausible	• Visual check of wiring • Check lock mechanics • Check that connections of relevant current circuit are correctly connected and fit tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again
2	Interior locking switch, drivers side	lock unlock not operated, implausible	
3	Central locking feedback locked, driver's side	locked unlocked	
4	Central locking feedback "safe", driver's side	Safe not Safe	

Break down of display content for display group number 002

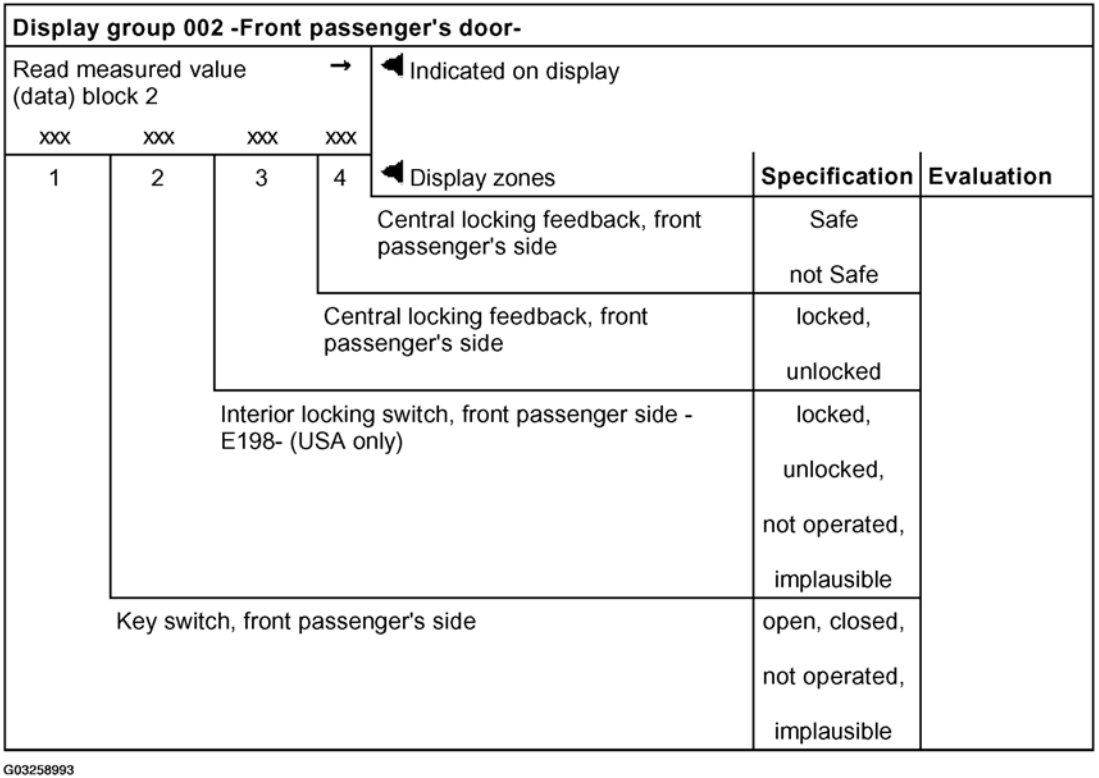


Fig. 193: Break Down Display Group 002 Chart - Central Locking
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 002

EVALUATING DISPLAY GROUP NUMBER 002 - CENTRAL LOCKING

Display zone	Designation	Display contents	Corrective action
1	Key switch, front passenger's side	open closed not operated implausible	• Visual check of wiring • Check lock mechanics • Check that connections of relevant current circuit are correctly connected and fit tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check
2	Interior locking switch, front passenger side - E198- (USA only)	locked, unlocked, not operated, implausible	
3	Central locking feedback locked, front passenger's side	locked unlocked	
4	Central locking feedback	Safe	

	"safe", front passenger's side	not Safe	• Check DTC memory again

Break down of display content for display group number 003

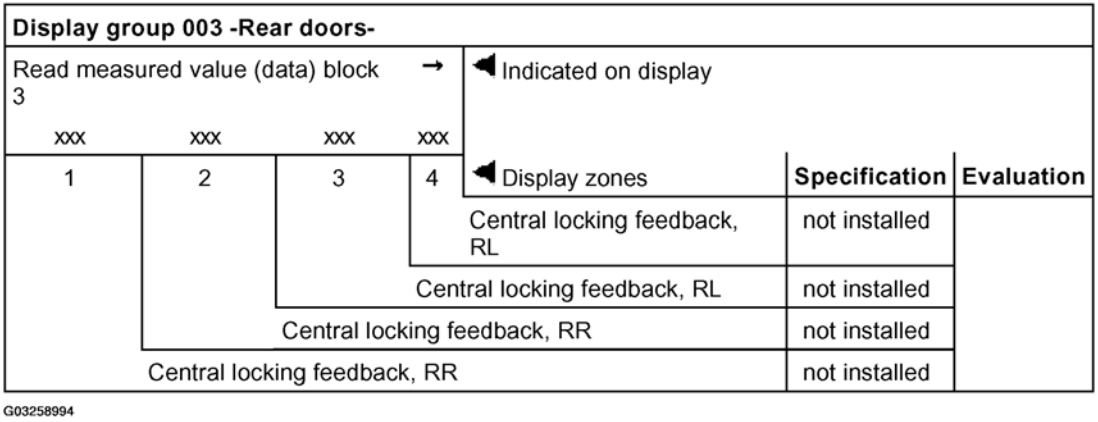


Fig. 194: Break Down Display Group 003 Chart - Central Locking
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Break down of display content for display group number 004

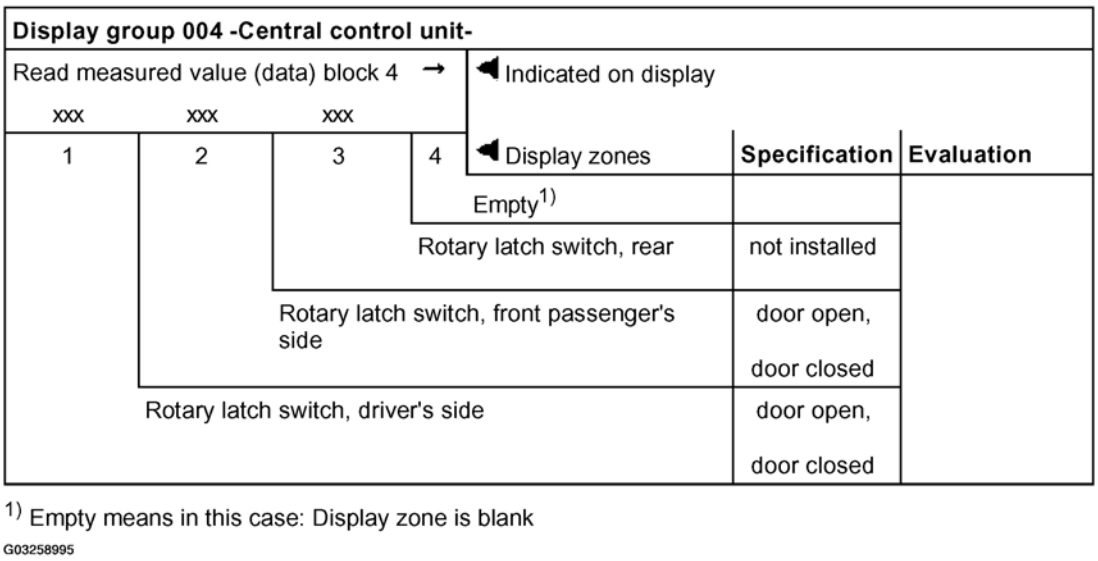


Fig. 195: Break Down Display Group 004 Chart - Central Locking
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 004

EVALUATING DISPLAY GROUP NUMBER 004 - CENTRAL LOCKING

Display zone	Designation	Display contents	Corrective action
1	Rotary latch switch, driver's side	door open, door closed	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and fit tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again
2	Rotary latch switch, front passenger's side	door open, door closed	
3	Rotary latch switch, rear	not installed	

Break down of display content for display group number 005

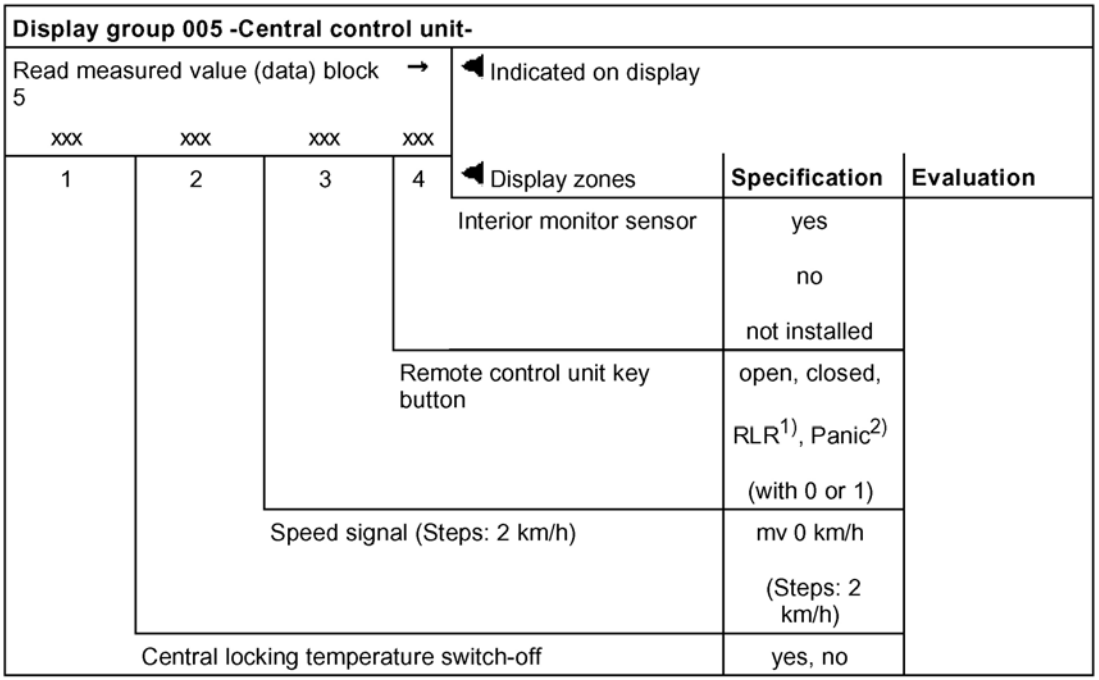


Fig. 196: Break Down Display Group 005 Chart - Central Locking
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 005

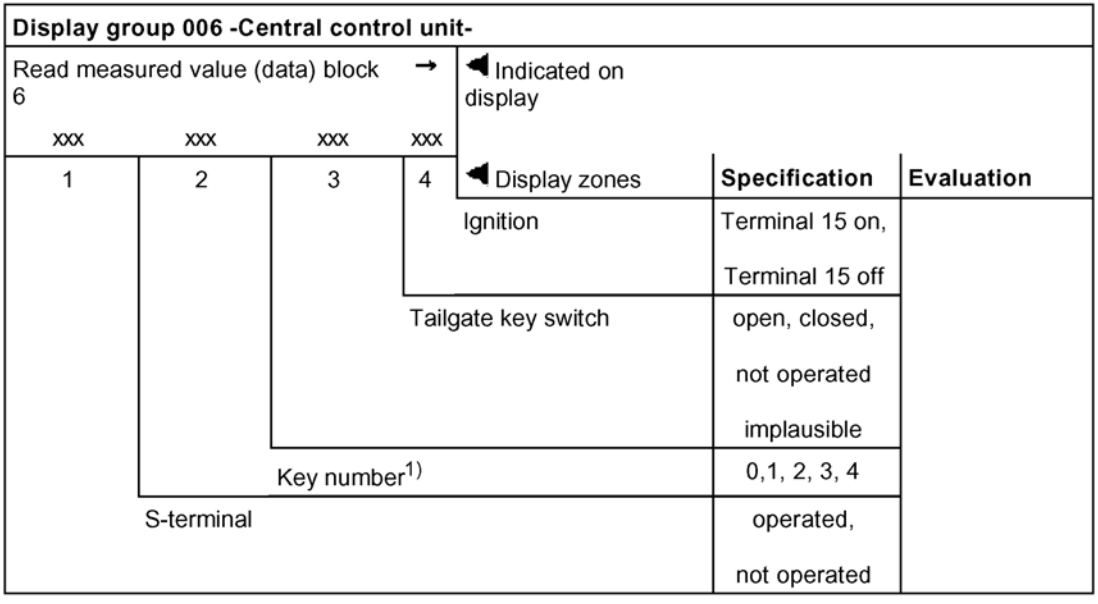
EVALUATING DISPLAY GROUP NUMBER 005 - CENTRAL LOCKING

Display zone	Designation	Display contents	Corrective action
1	Central locking temperature switch-off	yes, no	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and fit tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again • Adapt remote control unit again if necessary (Function 10, Adaptation)
2	Speed signal	mv = km/h (Steps: 2km/h)	
3	Remote control unit key button	open, closed, RLR(1) Panic(2) (with 0 or 1)	
4	Interior monitor sensor	yes no not installed	

(1) Only vehicles for USA, RLR= RearlidRemote release

(2) Only vehicles for USA, alarm system and turn signal lights are activated

Break down of display content for display group number 006



1) Display 1 for remote control key 1 is performed by operating a button on remote control key

G03258997

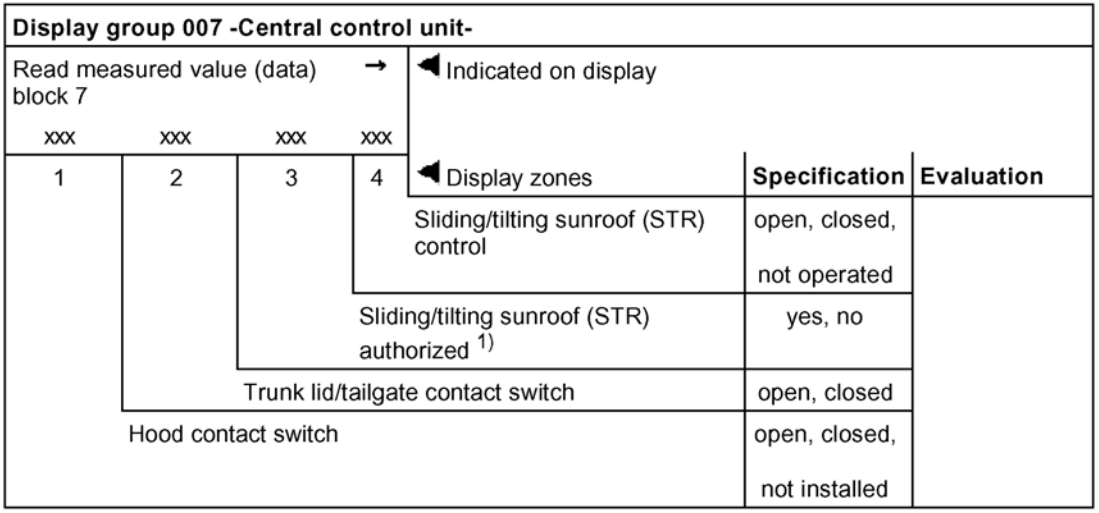
Fig. 197: Break Down Display Group 006 Chart - Central Locking
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 006

EVALUATING DISPLAY GROUP NUMBER 006 - CENTRAL LOCKING

Display zone	Designation	Display contents	Corrective action
1	S-terminal	operated not operated	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and fit tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again
2	Key number	mv = 1...4(1)	When operating a "learned" radio wave remote control key, as shown here, indicates in which position the key was learned/taught. If the tester displays "0" even when the remote button is pressed, this key must be "re-synchronized" using adaptation (10).
3	Tailgate key switch	open not operated implausible	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and fit tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again
4	Ignition	Terminal 15 on Terminal 15 off	
(1) A max. of 4 wave remote control keys can be learned/taught.			

Break down of display content for display group number 007



1) The control unit sends a "switch-off delay" terminal 15 to sliding/tilting sunroof. Therefore the operation of the sliding/tilting sunroof is still possible, after switching off the ignition, and until a door is opened.

G03258998

Fig. 198: Break Down Display Group 007 Chart - Central Locking
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 007

EVALUATING DISPLAY GROUP NUMBER 007 - CENTRAL LOCKING

Display zone	Designation	Display contents	Corrective action
1	Hood contact switch	operated not operated not installed	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and fit tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again
2	Trunk lid/tailgate contact switch	open closed	
3	Sliding/tilting sunroof (STR) authorized	yes no	
4	Sliding/tilting sunroof (STR) control	open, closed, not operated	

1) The control unit sends a "switch-off delay" terminal 15 to sliding/tilting sunroof. Therefore the operation of the sliding/tilting sunroof is still possible, after switching off the ignition, and until a door is opened.

Break down of display content for display group number 008

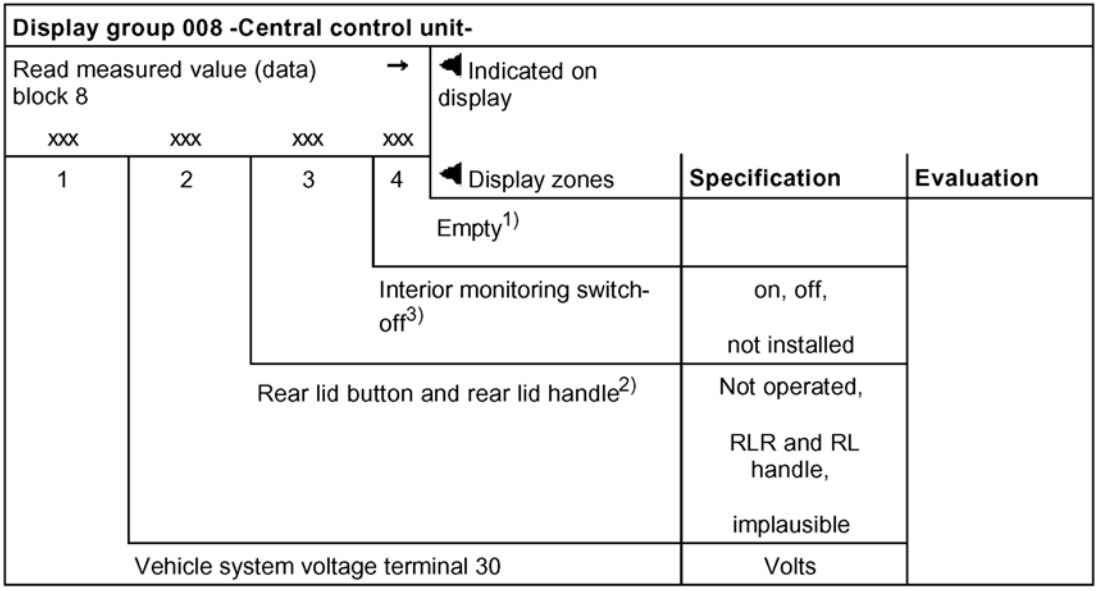


Fig. 199: Break Down Display Group 008 Chart - Central Locking
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 008

EVALUATING DISPLAY GROUP NUMBER 008 - CENTRAL LOCKING

Display zone	Designation	Display contents	Corrective action
1	Vehicle system voltage terminal 30	Volts	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and fit tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again
2	Rear lid button and rear lid handle(1)	Not operated, RLR and RL handle, implausible	
3	Interior monitoring switch-off(2)	Volts	

(1) Rear lid remote unlocking button, rear lid handle

(2) Interior monitoring switch-off

Break down of display content for display group number 009

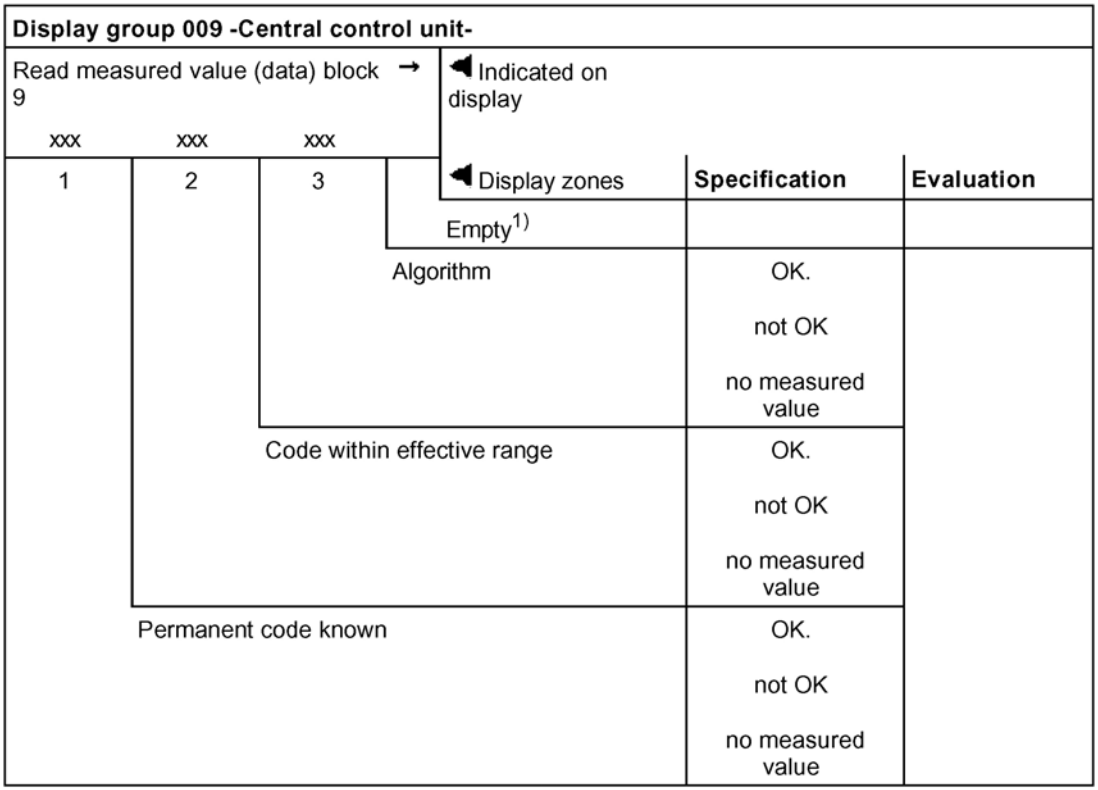


Fig. 200: Break Down Display Group 009 Chart - Central Locking
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 009

EVALUATING DISPLAY GROUP NUMBER 009 - CENTRAL LOCKING

Display zone	Designation	Display contents	Corrective action
1	Permanent code known	OK. not OK no measured value (key not operated at	For not OK: • Key code is outside the range of the receiver. Adapt radio wave control unit again via function 10 (Adaptation). See **RADIO FREQUENCY REMOTE CONTROL, PROGRAMMING IGNITION KEYS**
2	Code within		

	effective range	this moment)	**(ADAPTATION)** . For no measurement: • Battery in key is discharged (empty), change battery • Radio wave control unit is faulty, replace key unit
3	Algorithm		

Break down of display content for display group number 010

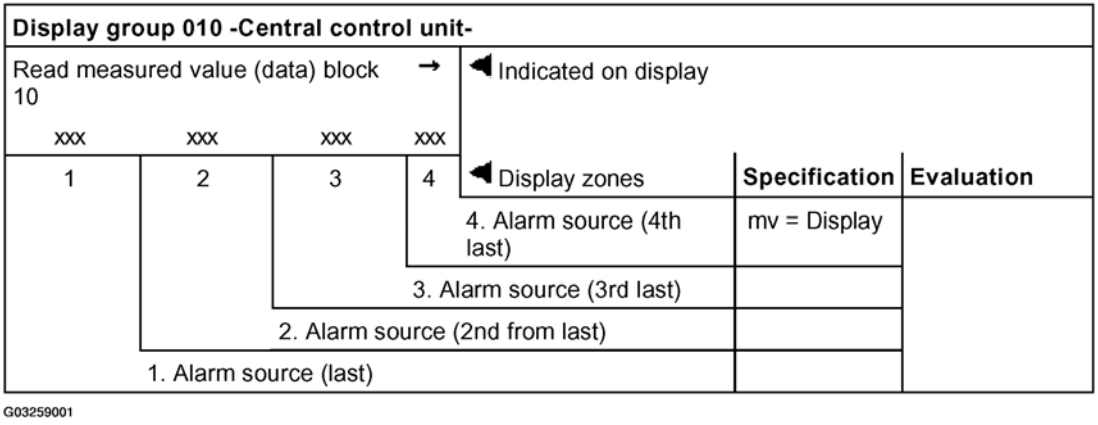


Fig. 201: Break Down Display Group 010 Chart - Central Locking
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 010

EVALUATING DISPLAY GROUP NUMBER 010 - CENTRAL LOCKING

Display zone	Designation	Display contents	Corrective action
1	Alarm source (last)	Display 1... 65535	Only the last 4 ATA(1) activations are shown! for example "4" = Hood contact switch (see table below for possible sources of alarm)
2	Alarm source (2nd from last)		
3	Alarm source (3rd last)		
4	Alarm source (4th last)		
(1) Anti-theft alarm system			

ANTI-THEFT ALARM SYSTEM DISPLAY

Possible sources of alarm	Display
Interior monitoring	2
Hood contact switch	4

Ignition	8
Trunk lid/tailgate contact switch	16
Rotary latch switch RL and RR	32
Front passenger rotary latch switch	64
Driver's rotary latch switch	128
No alarm	255

Break down of display content for display group number 011

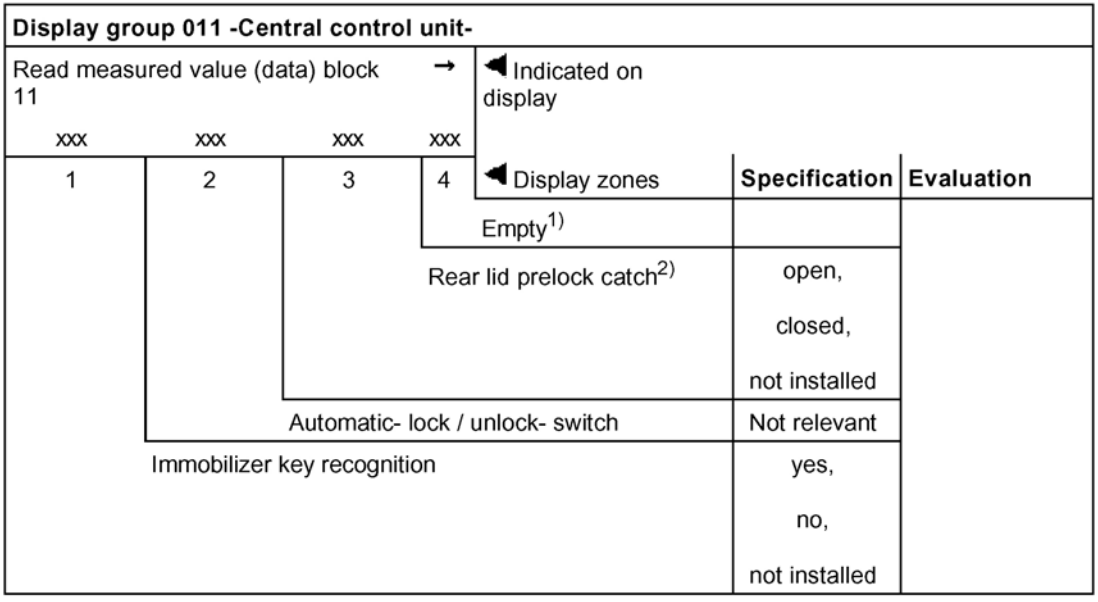


Fig. 202: Break Down Display Group 011 Chart - Central Locking
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 011

EVALUATING DISPLAY GROUP NUMBER 011 - CENTRAL LOCKING

Display zone	Designation	Display contents	Corrective action
1	Immobilizer key recognition	yes, no, not installed	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and fit tightly together while simultaneously observing display • If the display does not change after checking
2	Automatic lock /	Not	

	unlock switch	relevant	connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again
3	Rear lid prelock catch(1)	open, closed, not installed	
(1) Rotary latch must be detent in the first stage			

RADIO FREQUENCY REMOTE CONTROL, PROGRAMMING IGNITION KEYS (ADAPTATION)

NOTE:

- **If new or additional ignition keys are required they must be adapted to the immobilizer and central locking control electronics.**
- **All the keys must be adapted, even the existing ignition keys.**
- **All the keys must not be adapted again when including a new additional key, see NEW ADDITIONAL KEY, ADAPTING .**
- **The adaptation procedure can be interrupted by pressing the -C- button on the V.A.G 1551.**
- **With the introduction of this generation of central locking system it is possible to program additional functions. The functions and the programming are described from, see NEW ADDITIONAL KEY, ADAPTING .**
- **The adaptation procedure can be interrupted by pressing the -C- button on the V.A.G 1551.**

WARNING: The V.A.G 1551 dealership number (workshop code) will be stored in the immobilizer control unit when matching ignition keys.

Adapt all ignition keys

Requirements:

- All ignition keys available. If no old ignition key is available see "Lost key procedure",

  See Anti-theft Immobilizer; **ANTI-THEFT IMMOBILIZER, ON BOARD DIAGNOSTIC (OBD)** .

- Key fob with covered PIN number is available, if not see "Secret number, determining".

  See Anti-theft Immobilizer; **ANTI-THEFT IMMOBILIZER, ON BOARD DIAGNOSTIC (OBD)** .

NOTE: Effective calendar date 03.11.2002, the immobilizer secret number is encoded for increased security. The encoded number is now 7-digits and is referred to as a "PIN" ("Personal Identification Number").

Adapt all ignition keys

- Insert correct profile ignition key in the ignition lock.
- Connecting scan tool, see **SCAN TOOL, CONNECTING** . Initiating On Board Diagnosis (OBD), see **ON BOARD DIAGNOSIS (OBD) FOR THE CENTRAL LOCKING SYSTEM, INITIATING** .

The adaptation shown here is only an example.

Indicated on display:

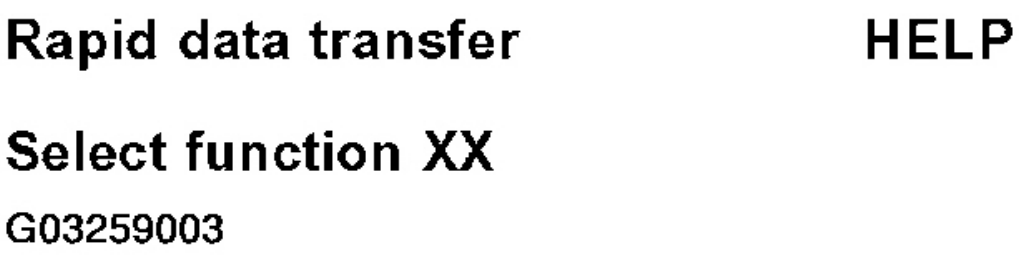


Fig. 203: Scan Tool Display - Adapting Ignition Keys (1 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -1- and -0- (10 selects the "Adaptation" function).

Indicated on display:

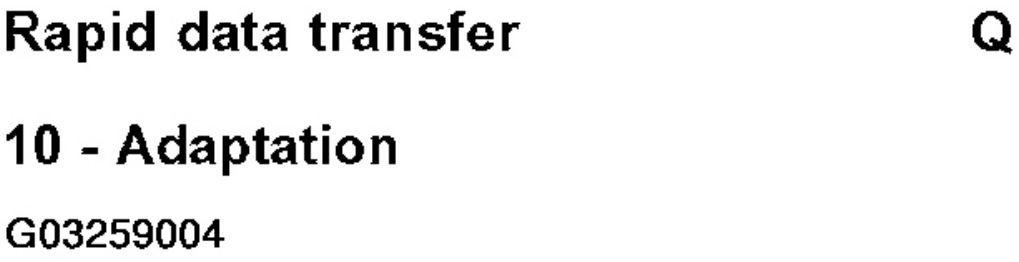


Fig. 204: Scan Tool Display - Adapting Ignition Keys (2 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

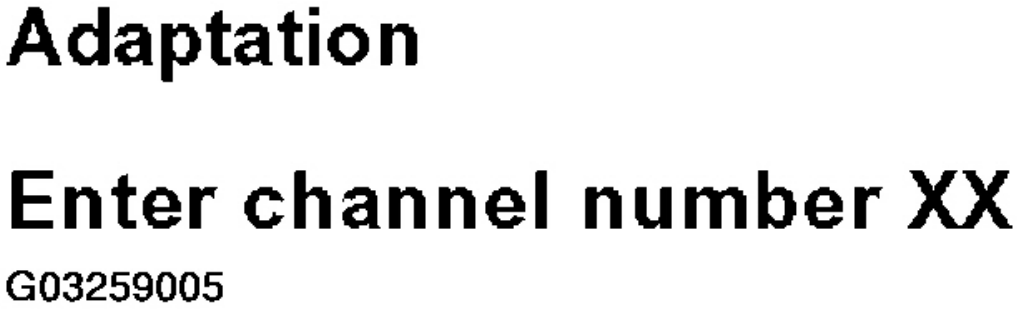


Fig. 205: Scan Tool Display - Adapting Ignition Keys (3 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -0- (all keys are erased with channel number 00).
- Confirm entry with -Q- button.

NOTE: It is not possible to match a new or additional key (s) without erasing existing learned/matched key (s).

Indicated on display:

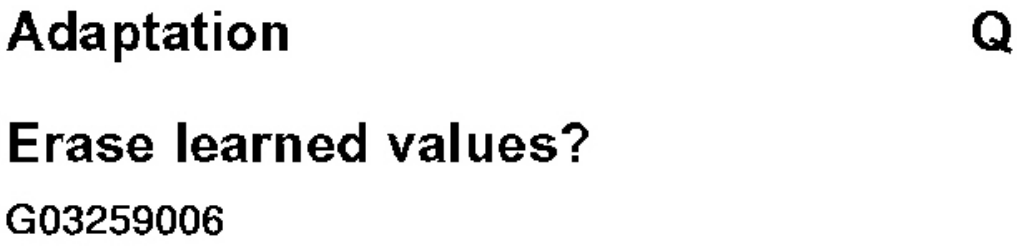


Fig. 206: Scan Tool Display - Adapting Ignition Keys (4 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

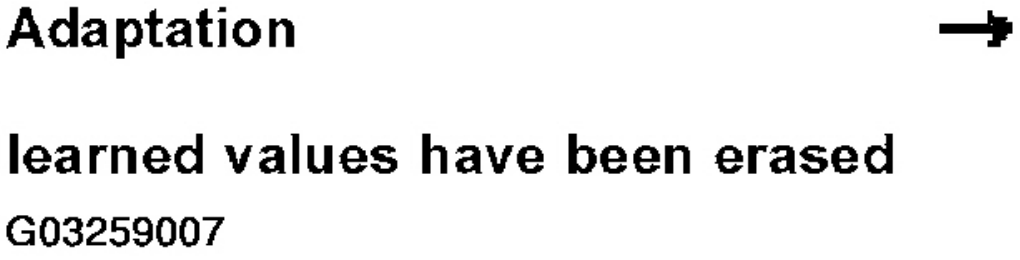


Fig. 207: Scan Tool Display - Adapting Ignition Keys (5 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press --> button.

Indicated on display:

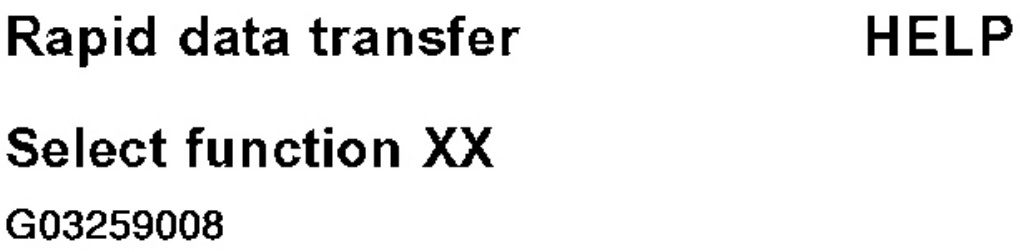


Fig. 208: Scan Tool Display - Adapting Ignition Keys (6 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -1- and -0- (10 selects the "Adaptation" function).

Indicated on display:

- Confirm entry with -Q- button.

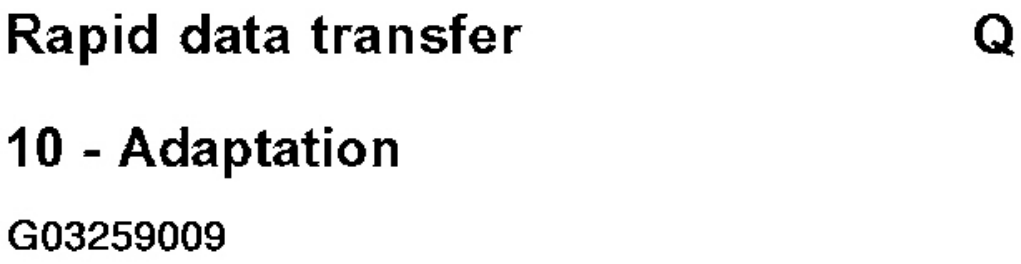


Fig. 209: Scan Tool Display - Adapting Ignition Keys (7 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

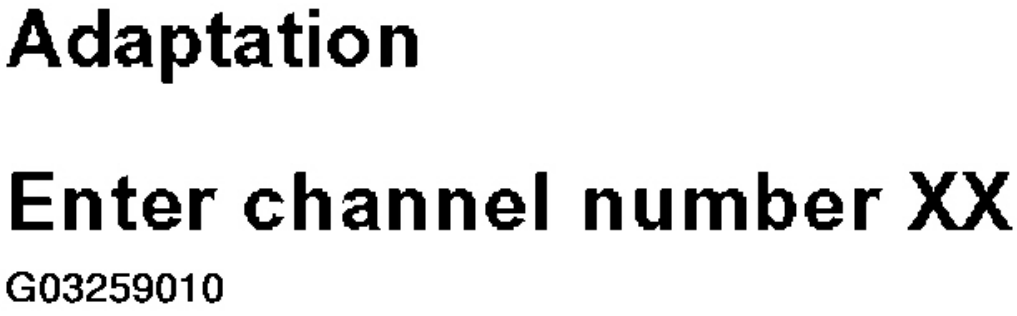


Fig. 210: Scan Tool Display - Adapting Ignition Keys (8 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -1-. (all keys are "learned" with channel number 01.)

Indicated on display:

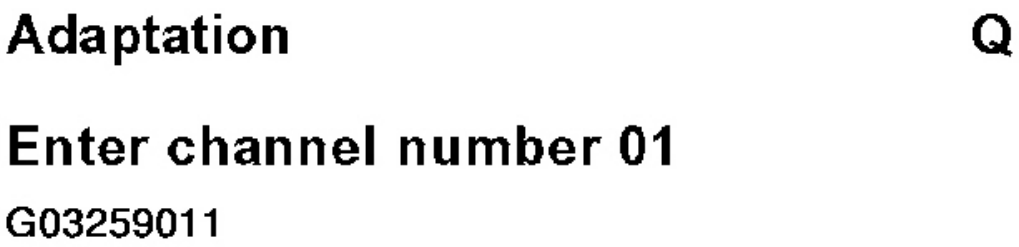


Fig. 211: Scan Tool Display - Adapting Ignition Keys (9 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

Fig. 212: Scan Tool Display - Adapting Ignition Keys (10 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The top line displays number of keys to be learned (Standard =1). Select number of keys with buttons -1- through -3-.

- Press --> button.

Indicated on display:

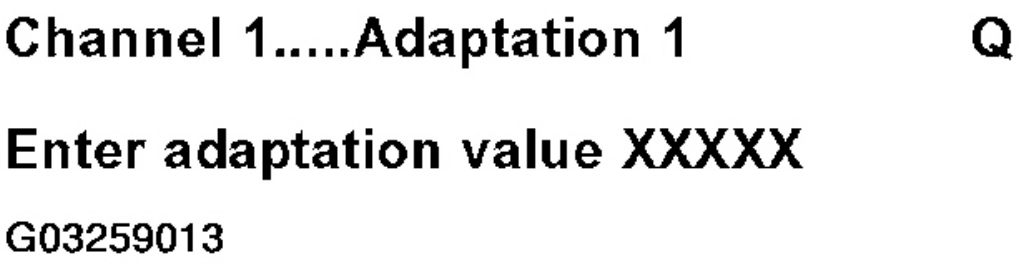


Fig. 213: Scan Tool Display - Adapting Ignition Keys (11 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press the -0- button four times and then enter the number of all ignition keys to be adapted, including the existing key, (e.g. 00003); max. Qty of 4 possible.
- Confirm entry with -Q- button.

Indicated on display: Number of radio wave key to be "learned".

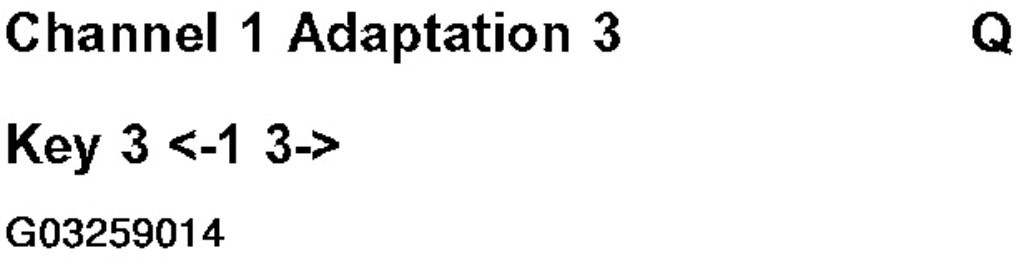


Fig. 214: Scan Tool Display - Adapting Ignition Keys (12 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

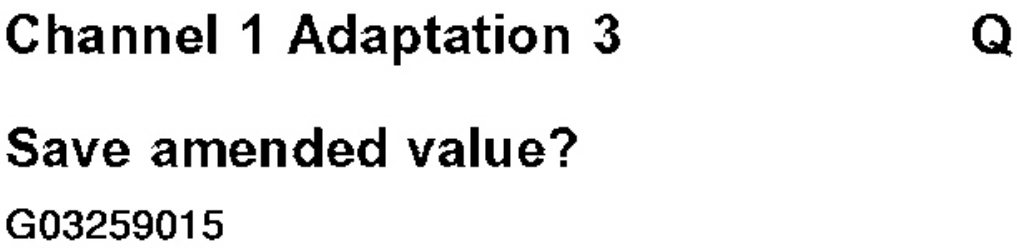


Fig. 215: Scan Tool Display - Adapting Ignition Keys (13 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

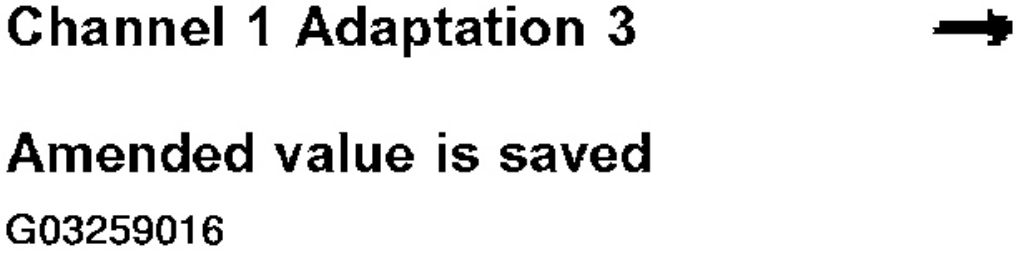


Fig. 216: Scan Tool Display - Adapting Ignition Keys (14 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press --> button.

Indicated on display:

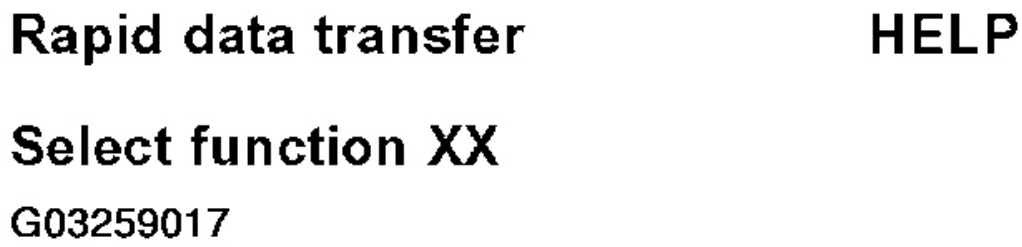


Fig. 217: Scan Tool Display - Adapting Ignition Keys (15 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Operate button on each of the radio wave remote control keys to be learned/taught once, for at least 1 second (3 keys in above example).
- Switch off ignition and remove ignition key.
- Perform functional check (e.g. 3) of radio wave keys.

NOTE:

- **A successful adaptation can be proven in read measured value block (Function 08), display group number 006, see BREAK DOWN OF DISPLAY CONTENT FOR DISPLAY GROUP NUMBER 006 ; or display group number 009, see BREAK DOWN OF DISPLAY CONTENT FOR DISPLAY GROUP NUMBER 009 .**
- **All 3 keys (see example) can be learned/taught in one adaptation sequence.**
- **After the functions have been completed the V.A.G 1551 returns to the mentioned start position.**
- **When adapting all keys (pressing a button), 15 seconds must not be exceeded.**

The adaptation of ignition keys is automatically terminated when:

- Number of keys to be adapted is reached.
- A button of one of the keys to be "learned" is pressed frequently.
- Permissible matching period of 15 seconds is exceeded (DTC is stored).

- Select function 02 "Interrogate DTC memory". If there is no DTC stored, the matching of the keys has been successfully completed.

NEW ADDITIONAL KEY, ADAPTING

- Insert a mechanically correct (old) ignition key in the ignition lock.
- Switch on ignition.
- Using a new (not taught / not learned) key, mechanically lock the vehicle (e.g. drivers door) and then operate one of the remote control buttons on key.
- After a pause of more than one second, operate one of the remote control buttons on key a second time.
- The adaptation sequence is complete and will be confirmed by the vehicle by a feedback horn beep.

The various functions listed in the table can be called up by selecting channel numbers 03...10 and adapted.

CENTRAL LOCKING SYSTEM FUNCTIONAL VARIATIONS

CENTRAL LOCKING SYSTEM FUNCTIONAL VARIATIONS

Channel number	Significance	Measured value
03	Auto-lock/Unlock: Vehicle is locked automatically when reaching a speed of 15km/h (approx. 9.5 mph)	on=1 off = 0
04	Auto-lock/Unlock: Vehicle is unlocked automatically when removing ignition key from ignition lock	on=1 off = 0
05	IM switch off: Interior monitor (IM) is activated/deactivated by pressing central locking "lock" twice	on=1 off = 0
06	Horn tone for unlock: Confirmation sound when unlocking(1)	on=1 off = 0
07	Horn tone for lock: Confirmation sound when locking(1)	on=1 off = 0
08	Indicators flash when unlocking: Confirmation flash of turn signals when unlocking	on=1 off = 0
09	Indicators flash when locking: Confirmation flash of turn signals when locking	on=1 off = 0
10	Adjusting alarm horn: Programming alarm horn to react when triggered to meet the relevant statutory regulations for the respective country	1 = Rest of Europe 2= Germany 3= UK
(1) No longer permitted in Germany according to current statutory regulations.		

The adaptation shown here is only an example.

Indicated on display:

- Press buttons -1- and -0- (10 selects the "Adaptation" function).

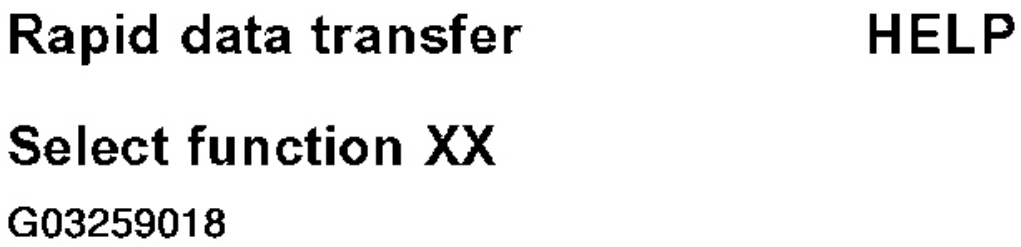


Fig. 218: Scan Tool Display - Central Locking System Functions (1 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

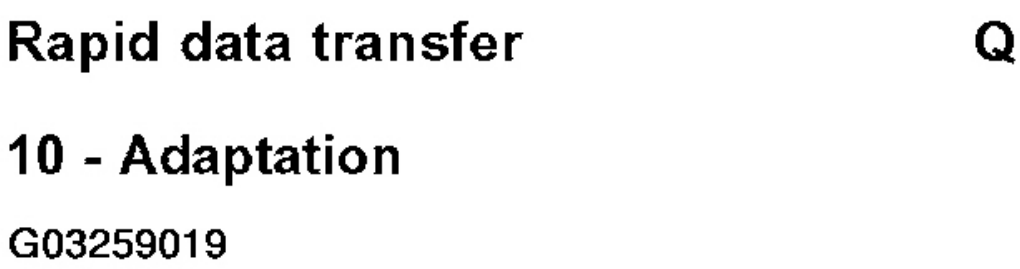


Fig. 219: Scan Tool Display - Central Locking System Functions (2 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

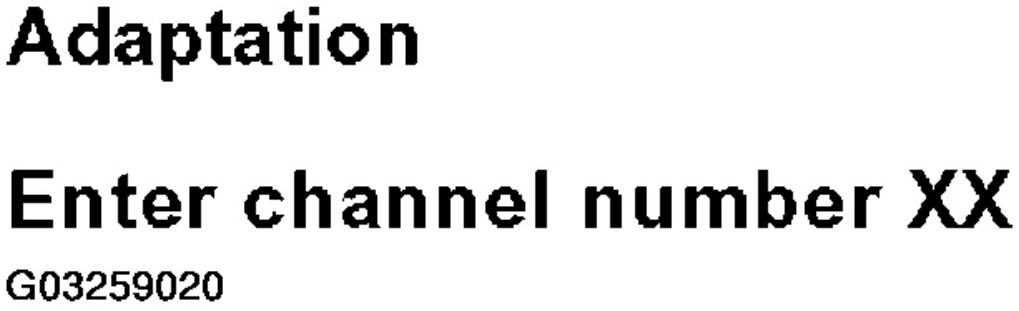


Fig. 220: Scan Tool Display - Central Locking System Functions (3 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -6- (channel number 06 switches the horn on or off when locking).

Indicated on display:

Fig. 221: Scan Tool Display - Central Locking System Functions (4 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

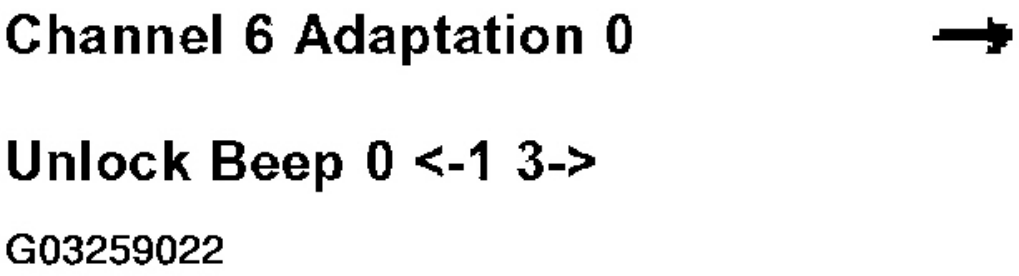


Fig. 222: Scan Tool Display - Central Locking System Function (5 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press --> button.

Indicated on display:

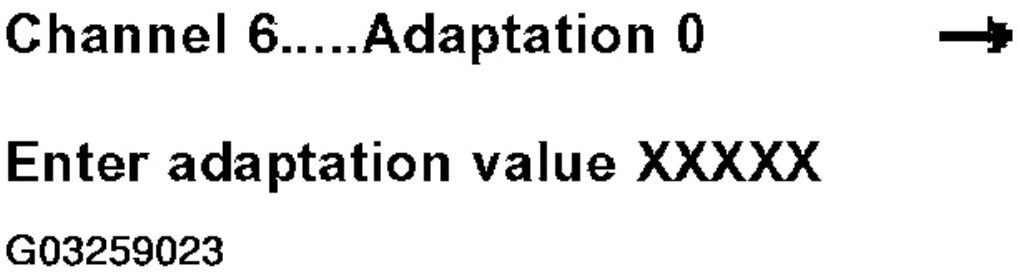


Fig. 223: Scan Tool Display - Central Locking System Function (6 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press --> button.
- Press the -0- button four times and then the -1- button (e.g. 00001).

Indicated on display:

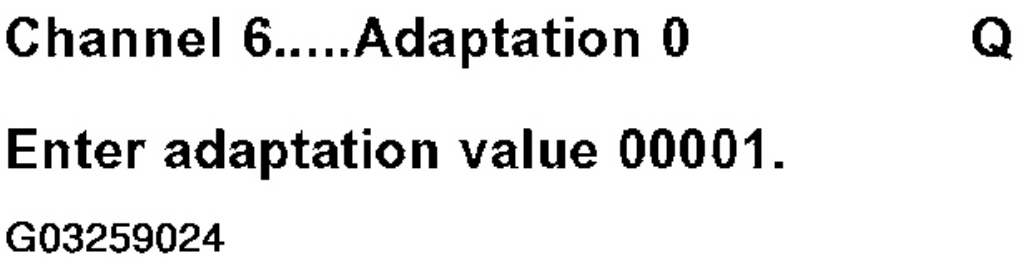


Fig. 224: Scan Tool Display - Central Locking System Function (7 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

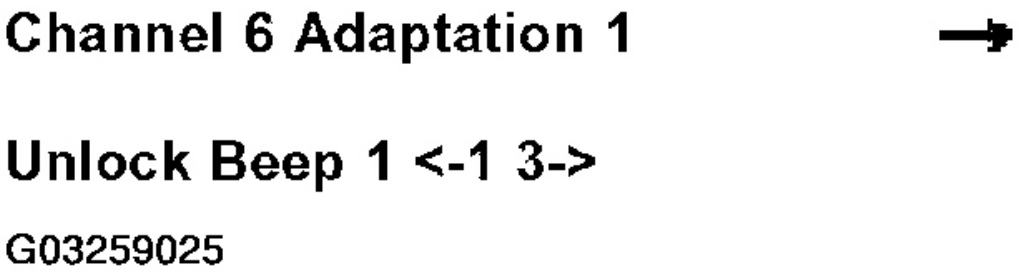


Fig. 225: Scan Tool Display - Central Locking System Function (8 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

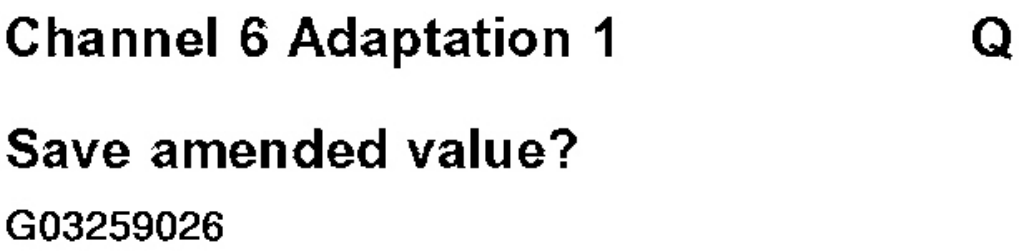


Fig. 226: Scan Tool Display - Central Locking System Function (9 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

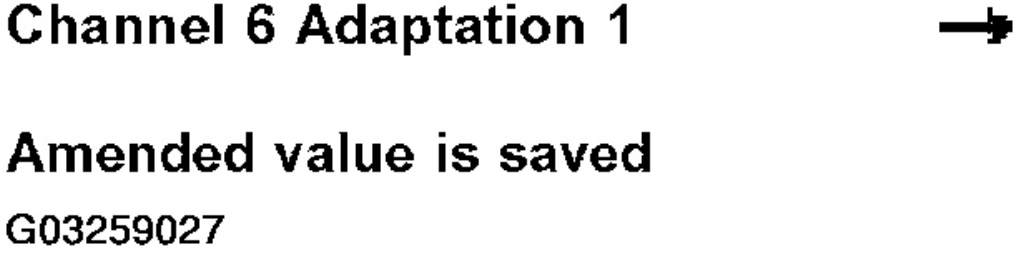


Fig. 227: Scan Tool Display - Central Locking System Function (10 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press --> button.

Indicated on display:

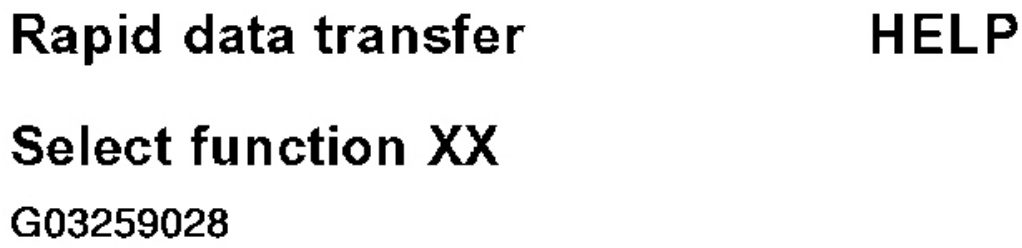


Fig. 228: Scan Tool Display - Central Locking System Function (11 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -6- to end the output.

Indicated on display:

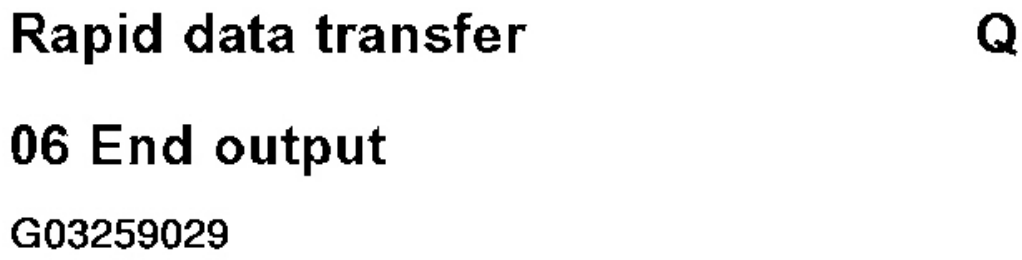


Fig. 229: Scan Tool Display - Central Locking System Function (12 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

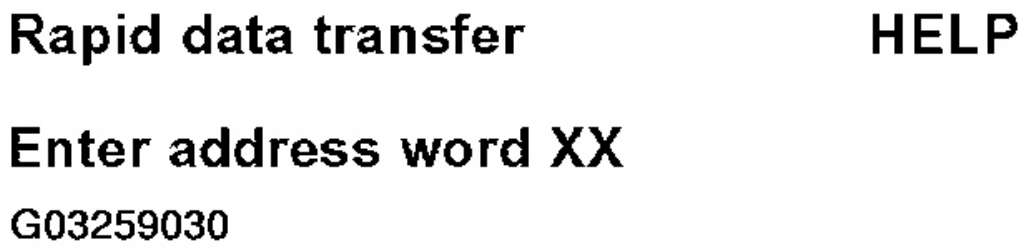


Fig. 230: Scan Tool Display - Central Locking System Function (13 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Switch off ignition.
- Disconnect connection to scan tool V.A.G 1551.

REAR SPOILER, ON BOARD DIAGNOSIS (OBD)

FUNCTIONAL DESCRIPTION

The rear spoiler raises automatically when the vehicle speed reaches 150 km/h (approx. 94 mph). If, at this speed the sunroof is open or raised then the sunroof will close automatically.

If the vehicle speed drops below 130 km/h (approx. 81 mph) the rear spoiler will lower automatically. The sunroof will open again.

The Rear spoiler control module -J223- detects malfunctions in the rear spoiler system and stores these in a non-volatile memory.

Using On Board Diagnosis (OBD) the malfunctions can be read and repairs undertaken using Guided Fault Finding.

A malfunction in the rear spoiler system is indicated via the rear spoiler warning lamp -arrow- when in the automatic mode. The warning lamp also lights up when rear spoiler is raised manually; see **REAR SPOILER, MANUALLY RAISING AND LOWERING** .

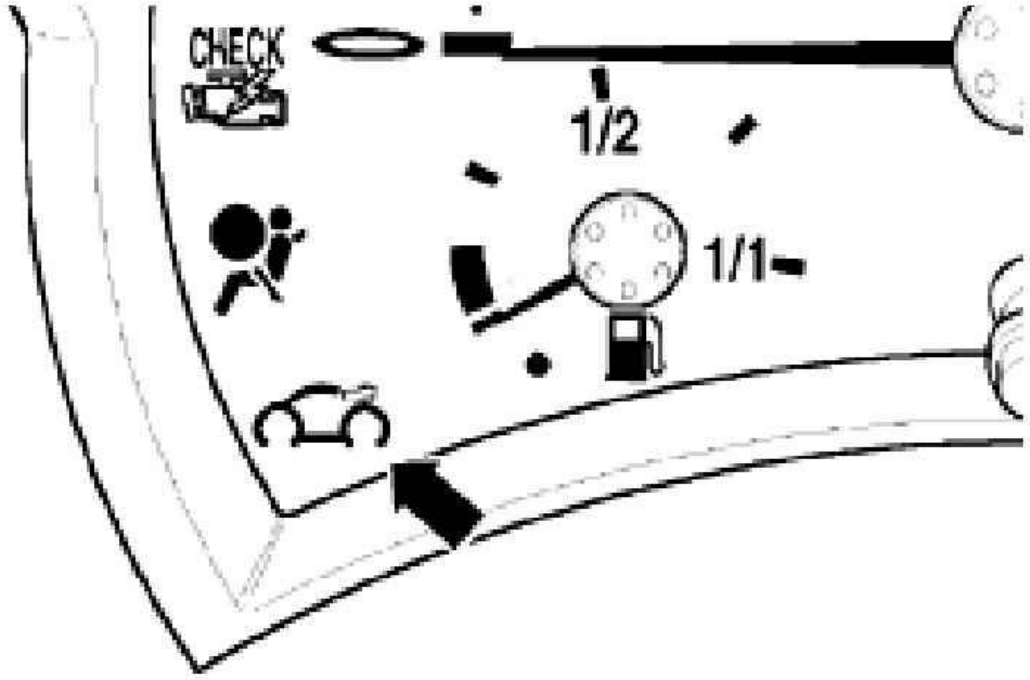


Fig. 231: Locating Rear Spoiler Warning Lamp
Courtesy of VOLKSWAGEN OF AMERICA, INC.

> **WARNING: The behavior of the vehicle can change at high speeds if the spoiler does not move into the raised position.**

After the ignition is switched on, the warning lamp comes on for about 4 seconds and then goes out again.

A malfunction is present if the warning lamp lights up again. Check DTC memory; see **DTC MEMORY, CHECKING (FUNCTION 02)** .

After having changed the Rear spoiler control module -J223- or after interrupting the voltage supply, the control module is initialized when the spoiler is raised and lowered manually for the first time (or a vehicle speed of 20 km/h is reached). When doing this, the control module ending points (rear spoiler lowered and raised) are detected and stored.

During this initialization the gradual lowering for the "manual" lowering and raising is not active; see **REAR SPOILER, MANUALLY RAISING AND LOWERING** .

REAR SPOILER, MANUALLY RAISING AND LOWERING

The switch for manually raising and lowering the rear spoiler (the rear spoiler adjustment switch -E127-) is located under the instrument panel near the steering column. Raising and lowering the rear spoiler manually can only be undertaken when the vehicle is stationary or traveling less than 150 km/h (approx. 94 mph).

When the ignition is switched on and the switch is moved to position -1- the rear spoiler moves to the fully raised position in one movement. Lowering is completed in several steps until the limit stop is reached when the switch is moved to end position -2- (as protection). When the vehicle speed is higher than 20 km/h the lowering occurs in one step.

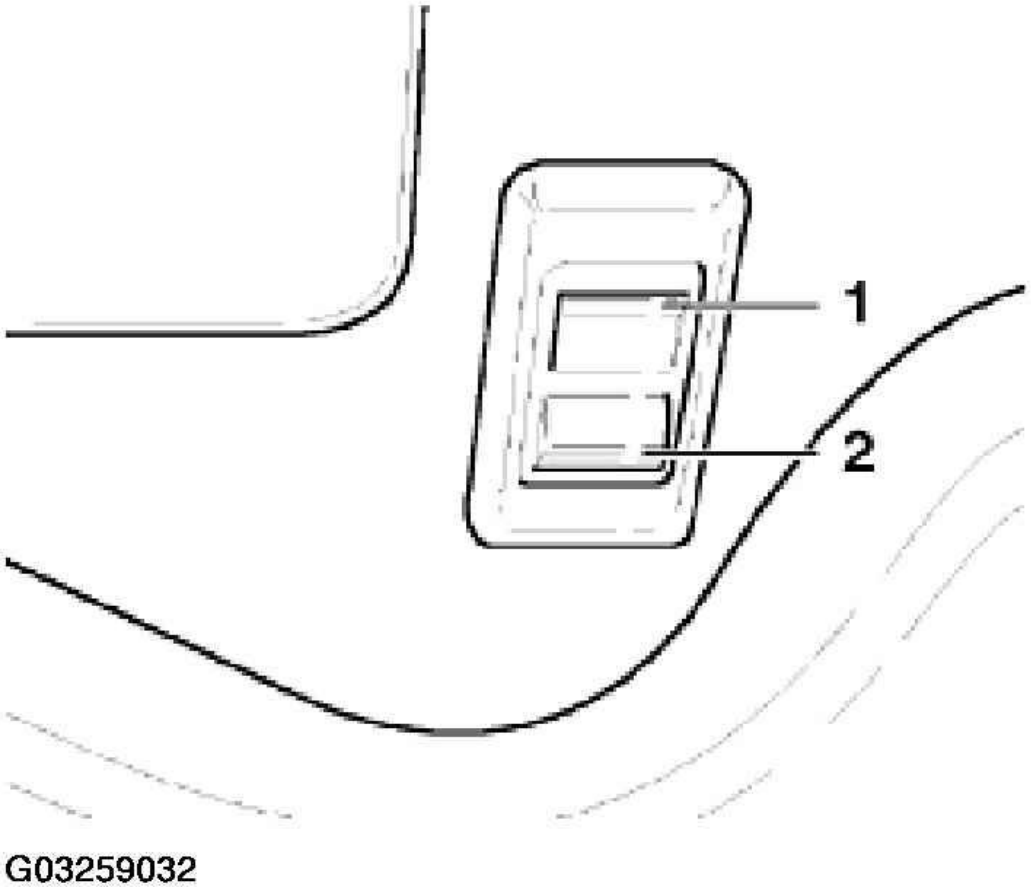


Fig. 232: Identifying Rear Spoiler Adjustment Switch
Courtesy of VOLKSWAGEN OF AMERICA, INC.

WARNING:

- **There is a danger of being caught/trapped!**

- **Always ensure there is sufficient clearance when raising and lower the rear spoiler manually.**

When working on the rear spoiler it is sensible to raise the rear spoiler fully before commencing work on the unit.

NOTE: Do not press the raised spoiler inward (or pull outward) by hand further.

ON BOARD DIAGNOSIS (OBD) FOR REAR SPOILER, INITIATING

Test prerequisites:

- Voltage supply and fuses for the respective system OK.
- To initiate the On Board Diagnosis (OBD) the ignition must be switched on "Terminal 15 on".

OBD for rear spoiler

NOTE:

- **If the display remains blank, check V.A.G 1551 voltage supply referring to Electrical Wiring Diagram.**

  See *Electrical Wiring Diagrams, Troubleshooting and Component Locations*

- **Additional operating information can be printed out depending on the program by pressing the HELP button of V.A.G 1551.**
- **The --> button serves to advance the program sequence.**
- **The PRINT button is used for switching on the printer (warning lamp in button lights up).**

Connecting scan tool, see **SCAN TOOL, CONNECTING** .

- Switch on ignition.
- Switch on printer with the Print button (indicator lamp in button lights up).

Indicated on display:

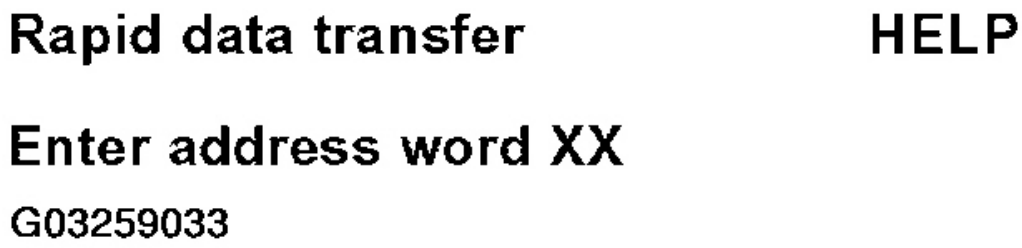


Fig. 233: Scan Tool Display - Rear Spoiler (1 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Adress word for rear spoiler: 54

Indicated on display:

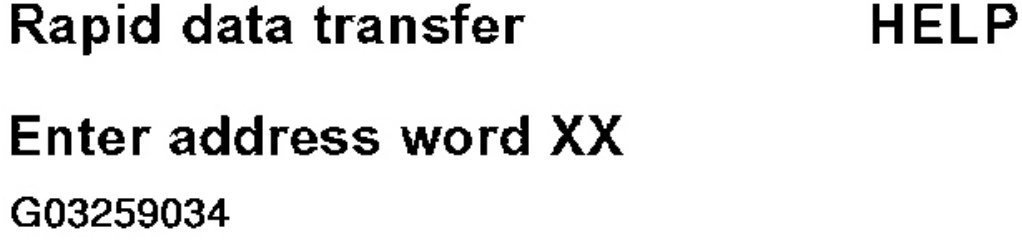


Fig. 234: Scan Tool Display - Rear Spoiler (2 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -5- and -4-.

Indicated on display after entering address word 54:

Fig. 235: Scan Tool Display - Rear Spoiler (3 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

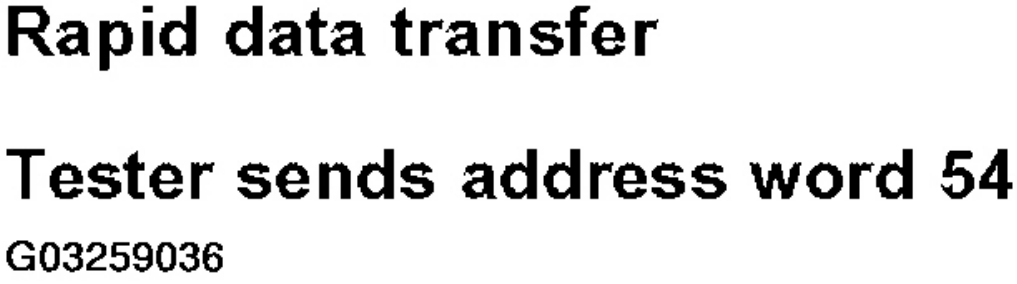


Fig. 236: Scan Tool Display - Rear Spoiler (4 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The Scan tool V.A.G 1551 display will show the control unit identification, for example **Fig. 237** .

Fig. 237: Scan Tool Display - Rear Spoiler (5 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press --> button

Indicated on display:

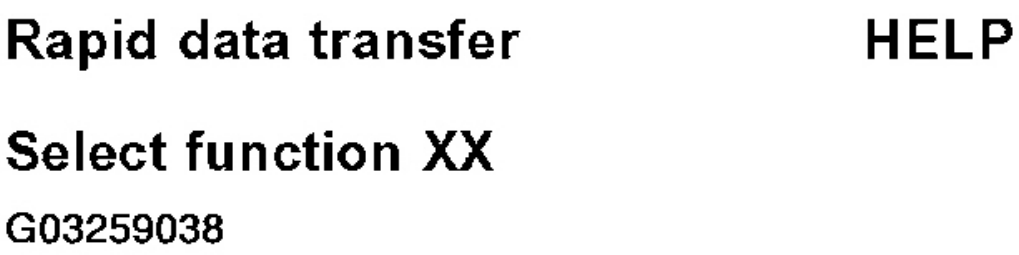


Fig. 238: Scan Tool Display - Rear Spoiler (6 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- If one of the malfunction messages opposite appears in the display, the possible causes of the malfunction can be printed out with the HELP button.

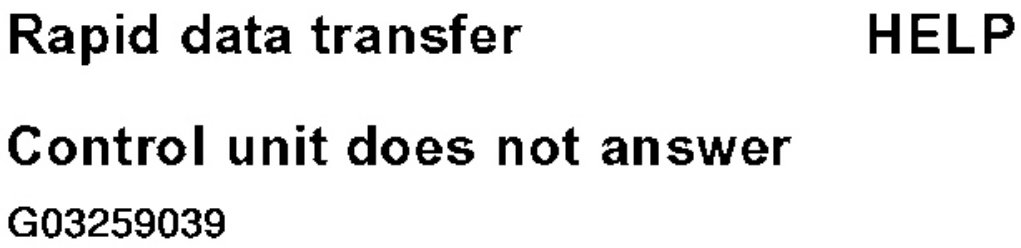


Fig. 239: Scan Tool Display - Rear Spoiler (7 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- When doing this the ignition must be switched on. See **Fig. 240** .

Fig. 240: Scan Tool Display - Rear Spoiler (8 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Malfunctions have occurred at the start of or during the program (external interference?).

Fig. 241: Scan Tool Display - Rear Spoiler (9 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Check diagnosis wires as well as voltage supply and ground (GND) connection. See **Fig. 242** .

Fig. 242: Scan Tool Display - Rear Spoiler (10 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- After repairing the possible causes of the malfunction, once again enter the address word 54 for "Rear spoiler" and confirm with the -Q- button.

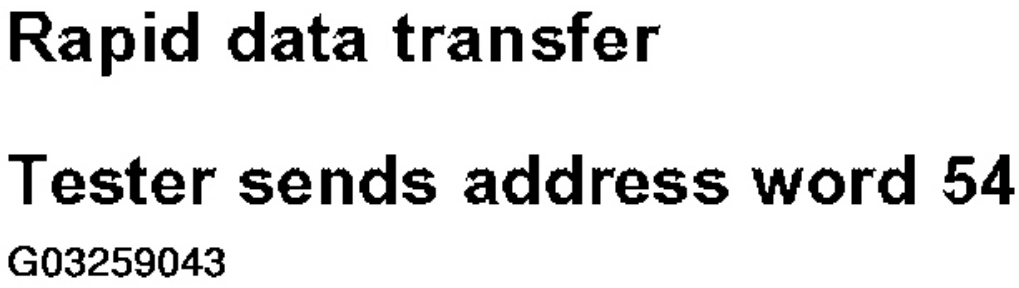


Fig. 243: Scan Tool Display - Rear Spoiler (11 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display after entering the address word 54:

The scan tool V.A.G 1551 display will show the control unit identification, for example see **Fig. 244** .

Fig. 244: Scan Tool Display - Rear Spoiler (12 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press --> button.

Indicated on display:

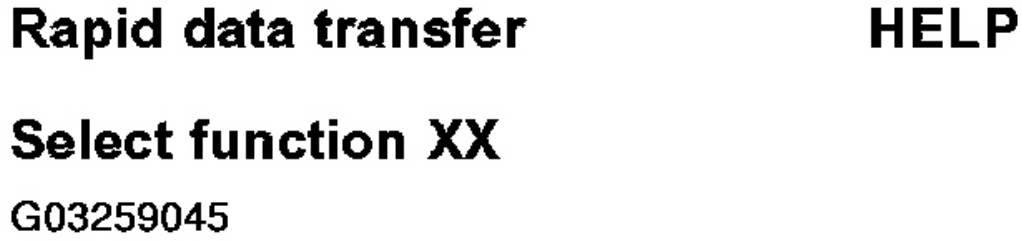


Fig. 245: Scan Tool Display - Rear Spoiler (13 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE:

- **A list of possible functions is printed out after pressing the HELP button.**
- **Do not select further functions, which can be printed out after pressing the HELP button.**
- **After the functions have been completed the V.A.G 1551 returns to the following start position:**

List of selectable functions

LIST OF SELECTABLE FUNCTIONS - REAR SPOILER

01 - Checking control unit version	**CONTROL UNIT VERSION, CHECKING (FUNCTION 01)**
02 - Check fault memory	**DTC MEMORY, CHECKING (FUNCTION 02)**
05 - Erasing fault memory	**DTC MEMORY, ERASING (FUNCTION 05)**
06 - Ending output	= **END OUTPUT**
08 - Read measured value block	**MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)**

CONTROL UNIT VERSION, CHECKING (FUNCTION 01)

- Connecting scan tool, see Page 01-3, initiating On Board Diagnosis (OBD), see **ON BOARD DIAGNOSIS (OBD) FOR REAR SPOILER, INITIATING** .

Indicated on display:

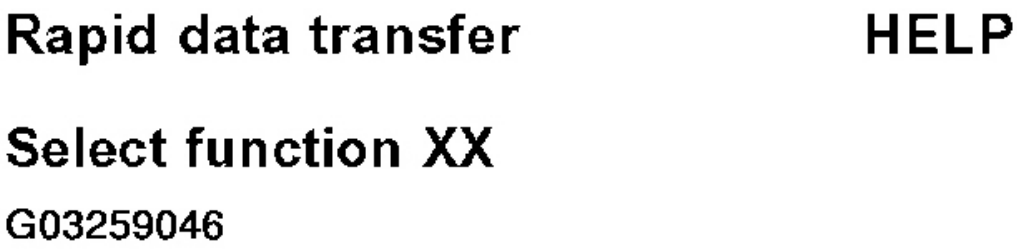


Fig. 246: Scan Tool Display - Rear Spoiler Function 01 (1 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -1-.

Indicated on display:

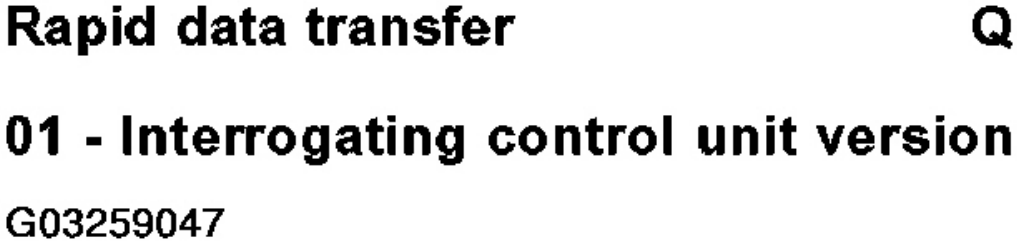


Fig. 247: Scan Tool Display - Rear Spoiler Function 01 (2 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

The scan tool V.A.G 1551 display will show the control unit identification, for example see **Fig. 248** .

Fig. 248: Scan Tool Display - Rear Spoiler Function 01 (3 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Breakdown of the display:

- 1C0959733B = Part No. of the control unit (for latest control unit version see parts catalog)
- Rear spoiler = System designation
- 0001 = Software version

- Press --> button.

Indicated on display:

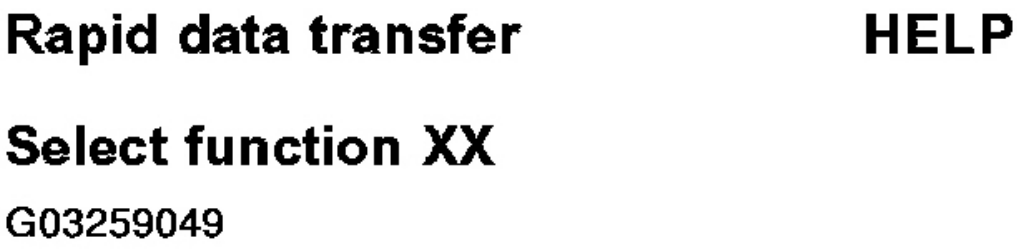


Fig. 249: Scan Tool Display - Rear Spoiler Function 01 (4 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -6- to end the output.
- Confirm entry with -Q- button.

Indicated on display:

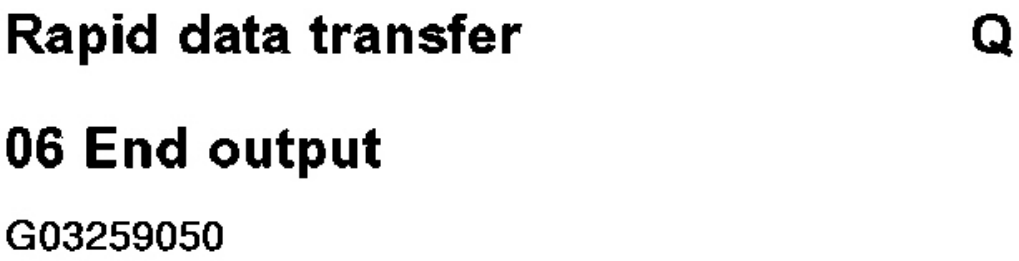


Fig. 250: Scan Tool Display - Rear Spoiler Function 01 (5 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Switch off ignition.
- Disconnect connection to scan tool V.A.G 1551.

DTC MEMORY, CHECKING (FUNCTION 02)

NOTE: The vehicle system tester V.A.G 1552 can be used instead of the scan tool V.A.G 1551;, however a print-out is not possible.

- Connecting scan tool, see **SCAN TOOL, CONNECTING** . Initiating On Board Diagnosis (OBD), see **ON BOARD DIAGNOSIS (OBD) FOR REAR SPOILER, INITIATING** .
- Switch on printer with the Print button (indicator lamp in button lights up).

Indicated on display:

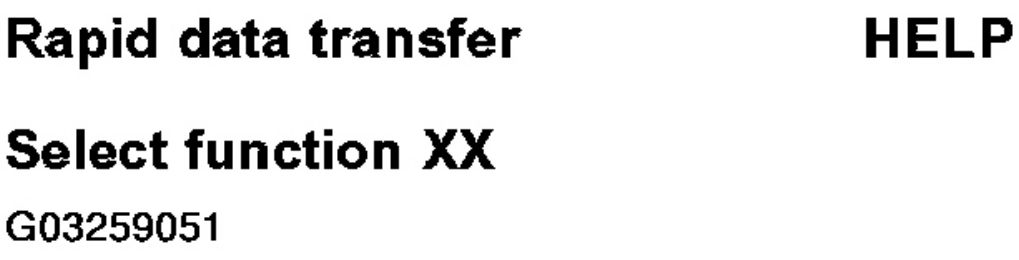


Fig. 251: Scan Tool Display - Rear Spoiler Function 02 (1 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -2-. (Function "Interrogate fault memory" is selected with 02).

Indicated on display:

Fig. 252: Scan Tool Display - Rear Spoiler Function 02 (2 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press Print button.
- Confirm entry with -Q- button.

The number of stored DTCs appears in the display.

Fig. 253: Scan Tool Display - Rear Spoiler Function 02 (3 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The stored DTCs will be displayed and printed out one after the other.

NOTE: If a malfunction is recognized:

- Repair malfunction

- Erase DTC memory (function 05)
- Interrogate DTC memory again (function J 02).

- The malfunctions printed out can be repaired with aid of Diagnostic Trouble Code (DTC) table. See **DIAGNOSTIC TROUBLE CODE (DTC) TABLE** .
- **MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)** and **DISPLAY GROUP OVERVIEW** are additional aids.

If "No fault recognized" is displayed the program will return to the initial position after pressing the --> button.

Fig. 254: Scan Tool Display - Rear Spoiler Function 02 (4 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

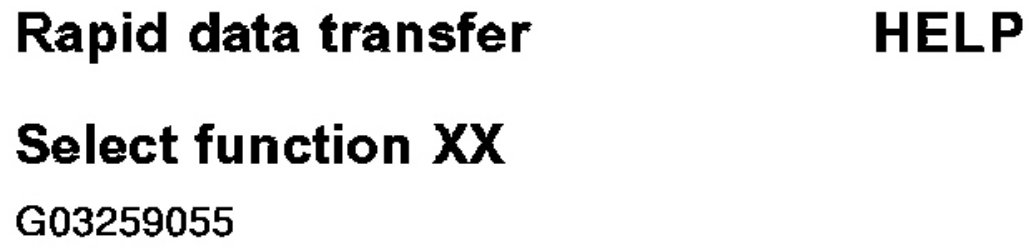


Fig. 255: Scan Tool Display - Rear Spoiler Function 02 (5 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -6- to end the output.

Indicated on display:

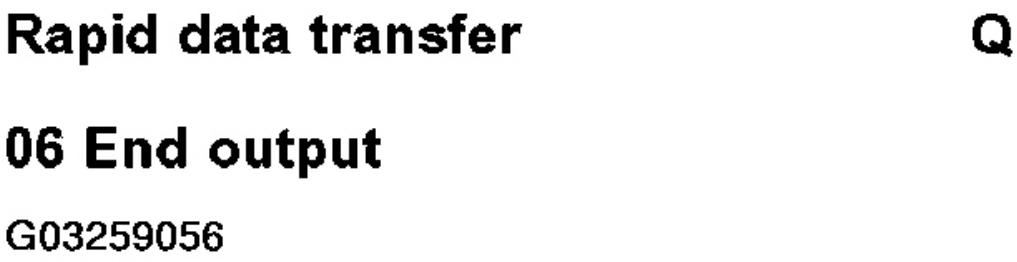


Fig. 256: Scan Tool Display - Rear Spoiler Function 02 (6 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

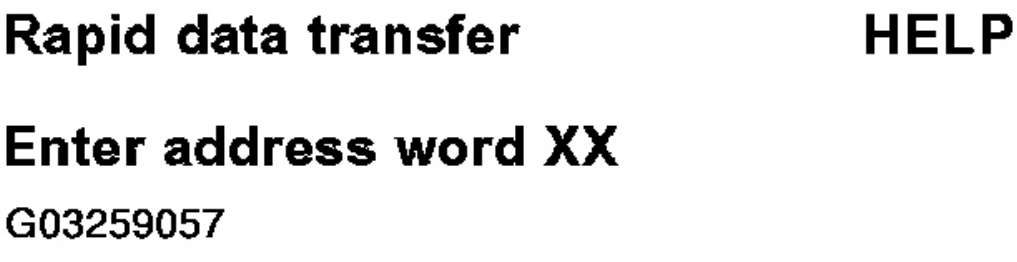


Fig. 257: Scan Tool Display - Rear Spoiler Function 02 (7 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Switch off ignition.
- Disconnect connection to scan tool V.A.G 1551.

DTC MEMORY, ERASING (FUNCTION 05)

NOTE: The vehicle system tester V.A.G 1552 can be used instead of the scan tool V.A.G 1551; however a print-out is not possible.

- Connecting scan tool, see Page 01-3, initiating On Board Diagnosis (OBD), see **ON BOARD**

DIAGNOSIS (OBD) FOR REAR SPOILER, INITIATING .

Requirements:

- Malfunction is corrected
- Functional check has been carried out
- DTC memory interrogated again

DTC memory, erasing

Indicated on display:

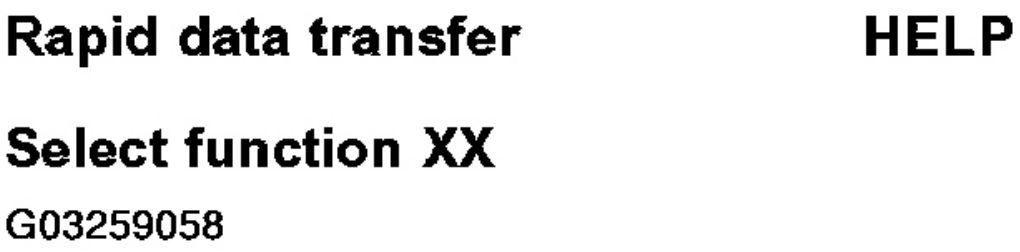


Fig. 258: Scan Tool Display - Rear Spoiler Function 05 (1 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -5- (the function "Erase fault memory" is entered with 05).

Indicated on display:

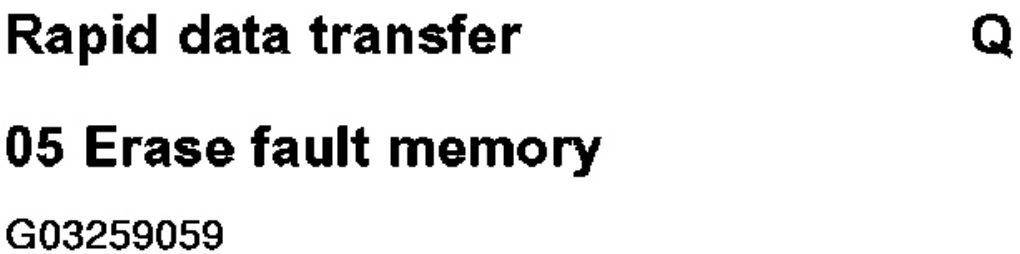


Fig. 259: Scan Tool Display - Rear Spoiler Function 05 (2 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

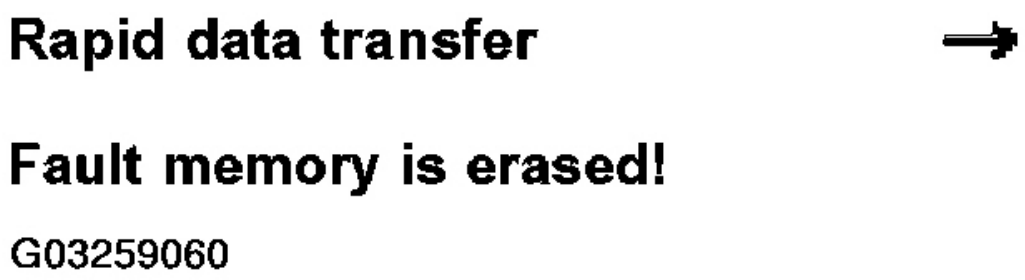


Fig. 260: Scan Tool Display - Rear Spoiler Function 05 (3 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press --> button.

Indicated on display:

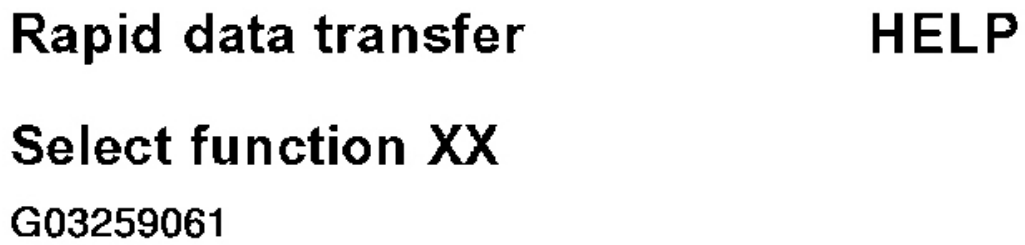


Fig. 261: Scan Tool Display - Rear Spoiler Function 05 (4 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- If this appears in the display, the test sequence has malfunctioned. See **Fig. 262** .

Fig. 262: Scan Tool Display - Rear Spoiler Function 05 (5 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Adhere exactly to test sequence: first of all interrogate DTC memory, then erase memory.
- Press buttons -0- and -6- to end the output.

Indicated on display:

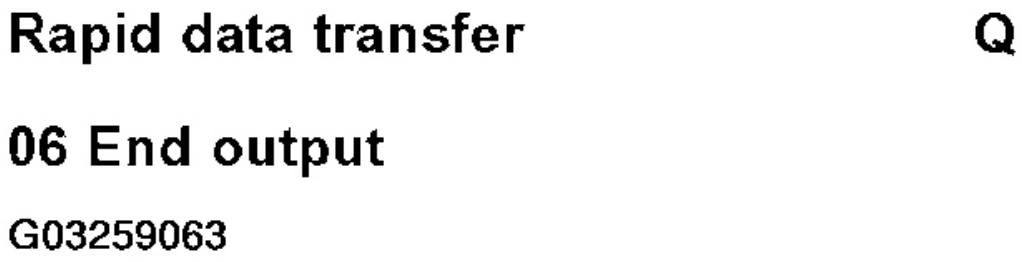


Fig. 263: Scan Tool Display - Rear Spoiler Function 05 (6 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

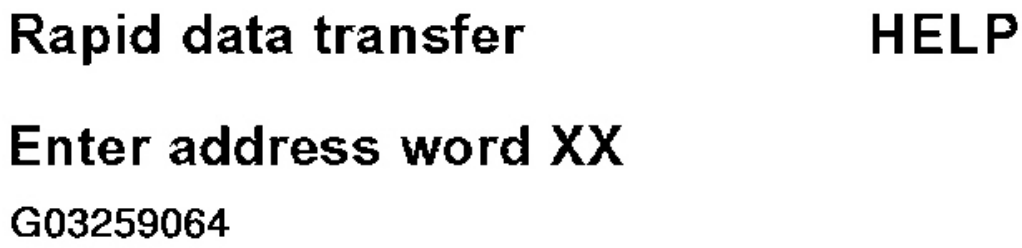


Fig. 264: Scan Tool Display - Rear Spoiler Function 05 (7 Of 7)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Switch off ignition.
- Disconnect connection to scan tool V.A.G 1551.

END OUTPUT

- Press buttons -0- and -6- to end the output.

Indicated on display:

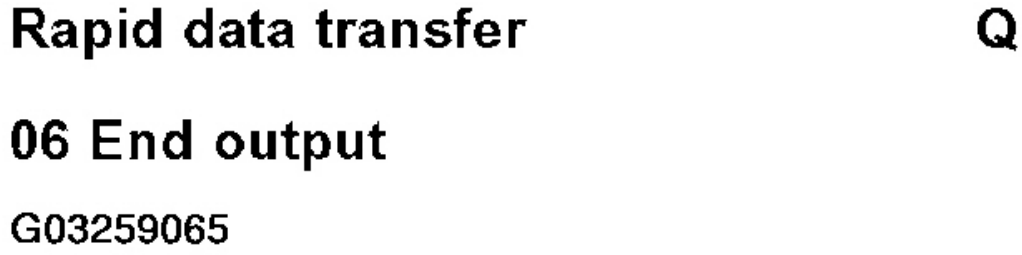


Fig. 265: Scan Tool Display - Rear Spoiler End Output (1 Of 2)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

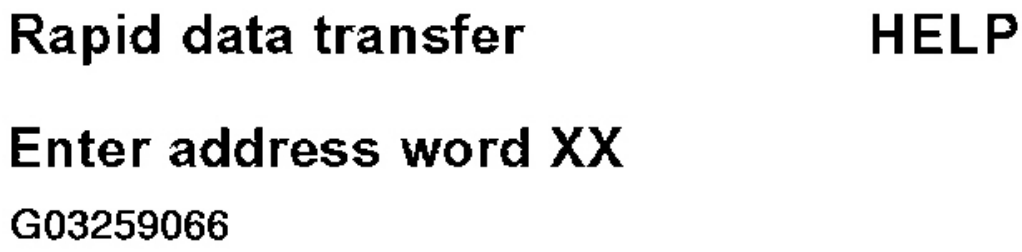


Fig. 266: Scan Tool Display - Rear Spoiler End Output (2 Of 2)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Switch off ignition.
- Disconnect connection to scan tool V.A.G 1551.

DIAGNOSTIC TROUBLE CODE (DTC) TABLE

NOTE:

- **The Diagnostic Trouble Code (DTC) tables are listed according to the 5 digit malfunction code on the left.**
- **Explanation of the DTC types (e.g. "open circuit/short to ground (GND)"): See Scan tool operating instructions.**
- **Before replacing components indicated as being faulty, check the wiring and connectors to these components as well as the ground (GND) connections using Electrical Wiring Diagram. This is particularly relevant if malfunctions are output as "occurring sporadically" (SP).**
- **The malfunctions displayed can be localized using the test table.**

DIAGNOSTIC TROUBLE CODE (DTC) - REAR SPOILER (00000 & 00926)

V.A.G 1551 print-out	Possible cause	Corrective action
00000 No fault recognized	If "No fault recognized" appears after performing repairs, the On Board Diagnosis (OBD) is terminated.	
00926 Vehicle voltage terminal 30 Signal too large Signal too small	• Voltage regulator -C-1 faulty • Alternator -C- faulty • Battery-A- discharged or faulty	- • Check wiring and connections referring to Electrical Wiring Diagram • Read measured value block; Display group number 001, see **DISPLAY GROUP OVERVIEW** , display zone 1 • Replace faulty components

	• Wiring or connections faulty	• Charge or replace battery • Check wiring and connections referring to Electrical Wiring Diagram

DIAGNOSTIC TROUBLE CODE (DTC) - REAR SPOILER (01086)

V.A.G 1551 print-out	Possible cause	Corrective action
01086 Speedometer sender Implausible signal (no speed signal)	• Wiring or connections faulty • Speedometer sender -G22- faulty • Fuse -S7- faulty • Dash panel insert -J285- faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Read measured value block; Display group number 001, see **DISPLAY GROUP OVERVIEW** , display zone 2 • Checking vehicle speed signal See CHECKING ADDITIONAL SIGNALS in Fuel Injection & Ignition. • Replace speedometer sender -G22- • Replace fuse -S-7 • Replace Control module with indicator unit in instrument panel insert -J285-

DIAGNOSTIC TROUBLE CODE (DTC) - REAR SPOILER (01507 & 01508)

V.A.G 1551 print-out	Possible cause	Corrective action
01507 Initialization not successful	• Parallel running not adjusted correctly • Rear spoiler is mechanically blocked • mechanical components with malfunction	• Adjusting parallel running See **REAR SPOILER, ASSEMBLY OVERVIEW** and **PARALLEL RUNNING, CHECKING AND ADJUSTING** . • Check function of rear spoiler mechanical components See **REAR SPOILER, ASSEMBLY OVERVIEW** .
01508 Switch off because end position is not achieved	• Parallel running not adjusted correctly • Rear spoiler is mechanically blocked • mechanical components with malfunction	• Adjusting parallel running See **REAR SPOILER, ASSEMBLY OVERVIEW** and **PARALLEL RUNNING, CHECKING AND ADJUSTING** . • Check function of rear spoiler mechanical components

		See **REAR SPOILER, ASSEMBLY OVERVIEW** .

DIAGNOSTIC TROUBLE CODE (DTC) - REAR SPOILER (01509)

V.A.G 1551 print-out	Possible cause	Corrective action
01509 Spoiler is not raised when speed is higher than warning limit	• Parallel running not adjusted correctly • Rear spoiler is mechanically blocked • mechanical components with malfunction • Adjustable rear spoiler motor -V52- faulty	• Adjusting parallel running See **REAR SPOILER, ASSEMBLY OVERVIEW** and **PARALLEL RUNNING, CHECKING AND ADJUSTING** . • Check function of rear spoiler mechanical components See **REAR SPOILER, ASSEMBLY OVERVIEW** . • Replace adjustable rear spoiler motor -V52- See **REAR SPOILER, ASSEMBLY OVERVIEW** and **REAR SPOILER DRIVE, REMOVING AND INSTALLING** .

DIAGNOSTIC TROUBLE CODE (DTC) - REAR SPOILER (01510)

V.A.G 1551 print-out	Possible cause	Corrective action
01510 Spoiler is not raised when speed is higher than alarm limit	• Parallel running not adjusted correctly • Rear spoiler is mechanically blocked • mechanical components with malfunction • Adjustable rear spoiler motor -V52- faulty	• Adjusting parallel running See **REAR SPOILER, ASSEMBLY OVERVIEW** and **PARALLEL RUNNING, CHECKING AND ADJUSTING** . • Check function of rear spoiler mechanical components See **REAR SPOILER, ASSEMBLY OVERVIEW** . • Replace adjustable rear spoiler motor -V52- See **REAR SPOILER, ASSEMBLY OVERVIEW** and **REAR SPOILER DRIVE, REMOVING AND INSTALLING** .

DIAGNOSTIC TROUBLE CODE (DTC) - REAR SPOILER (01511)

V.A.G 1551 print-out	Possible cause	Corrective action
01511 Rear spoiler switch not in right position Implausible signal Short to ground (GND)	• Wiring or connections faulty • Wiring or connections faulty • Rear spoiler adjustment switch -E127- faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Check wiring and connections referring to Electrical Wiring Diagram • Read measured value block; Display group number 001, see **DISPLAY GROUP OVERVIEW** , display zone 3 • Rear spoiler adjustment switch -E127- faulty

DIAGNOSTIC TROUBLE CODE (DTC) - REAR SPOILER (01512)

V.A.G 1551 print-out	Possible cause	Corrective action
01512 Sliding sunroof control unit Faulty No communication	• Wiring or connections faulty • Sliding sunroof adjustment control unit -J245- faulty • Wiring or connections faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Replace sliding sunroof adjustment control unit -J245- See **SLIDING/TILTING SUNROOF** . • The system, even with the DTC entry, is OK. • Erase DTC memory • Perform functional check • Check wiring and connections referring to Electrical Wiring Diagram

DIAGNOSTIC TROUBLE CODE (DTC) - REAR SPOILER (01513 & 01514)

V.A.G 1551 print-out	Possible cause	Corrective action
01513 Sliding/tilting sunroof can not lower	• Wiring or connections faulty • Sliding/tilting sunroof is mechanically blocked or faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Rectify blocking or check sliding/tilting sunroof function See **SLIDING/TILTING SUNROOF** .
01514 Sliding sunroof adjustment regulator Faulty	• Wiring or connections faulty • Sliding sunroof adjustment	• Check wiring and connections referring to Electrical Wiring Diagram

	regulator -E139- faulty	• Replace sliding sunroof adjustment regulator -E139- See **SLIDING/TILTING SUNROOF** .

DIAGNOSTIC TROUBLE CODE (DTC) - REAR SPOILER (01515, 01683 & 65535)

V.A.G 1551 print-out	Possible cause	Corrective action
01515 Authorizing signal of convenience system Open circuit/short to ground (GND)	• Wiring or connections faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Check via respective On Board Diagnosis (OBD) (read measured value block) authorizing signal of convenience system (**Break down of display content for display group number 011**) or central locking (**Break down of display content for display group number 007**).
01683 Wheel speed signals/speed Implausible signal	• Wiring or connections faulty	• Check wiring and connections referring to Electrical Wiring Diagram
65535 Control unit No fault Faulty	• Wiring or connections faulty • Control unit faulty	• Check wiring and connections referring to Electrical Wiring Diagram • Replace control unit

MEASURED VALUE (DATA) BLOCK, READING (FUNCTION 08)

- Connecting scan tool, see **SCAN TOOL, CONNECTING** . Initiating On Board Diagnosis (OBD), see **ON BOARD DIAGNOSIS (OBD) FOR REAR SPOILER, INITIATING** .

The measured value block embraces one display group number. The assignment of the individual display zones can be taken from the display group overview, see **DISPLAY GROUP OVERVIEW** .

Indicated on display:

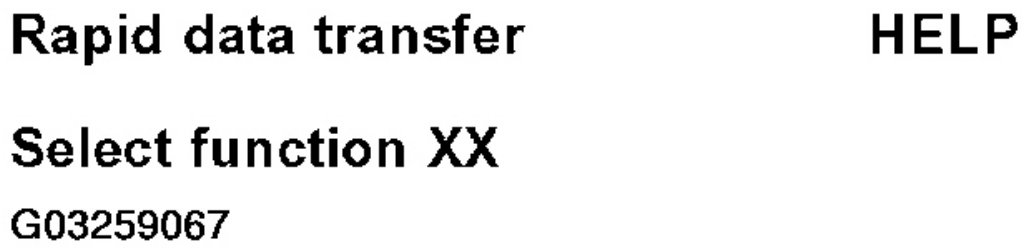


Fig. 267: Scan Tool Display - Rear Spoiler Function 08 (1 Of 4)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press buttons -0- and -8- (08 initiates function "Read measured value block").

Indicated on display:

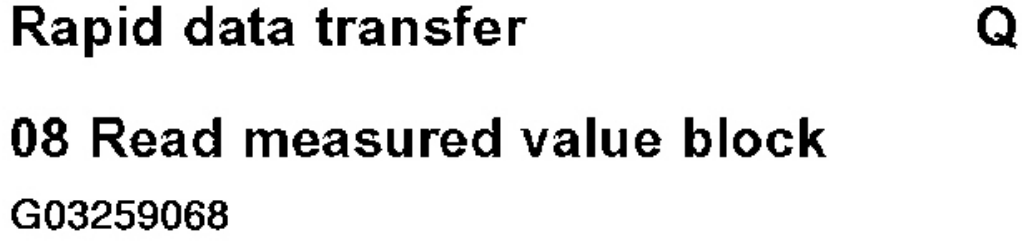


Fig. 268: Scan Tool Display- Rear Spoiler Function 08 (2 Of 4)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Confirm entry with -Q- button.

Indicated on display:

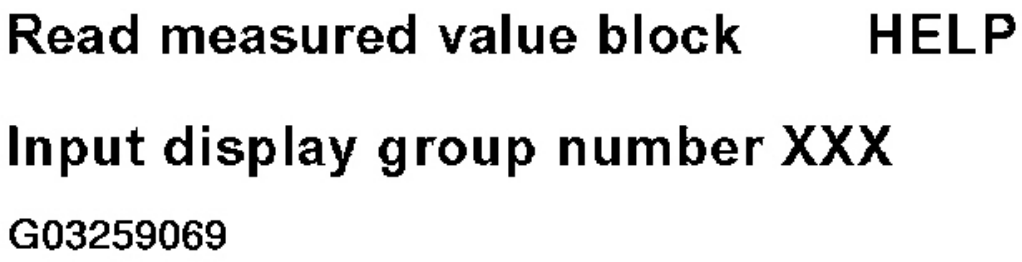


Fig. 269: Scan Tool Display - Rear Spoiler Function 08 (3 Of 4)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE: The display group number 001 is an example, to illustrate the sequence.

- Press buttons -0-, -0- and -1- for "Display group number 1" and confirm entry with -Q- button.

Indicated on display: (1...4 = display zones)

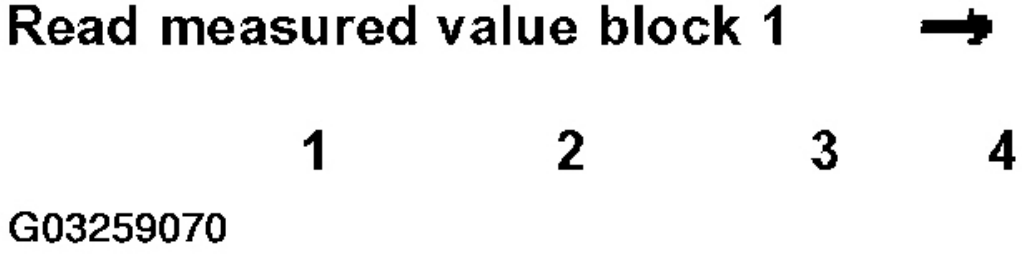


Fig. 270: Scan Tool Display - Rear Spoiler Function 08 (4 Of 4)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

DISPLAY GROUP OVERVIEW

Break down of display content for display group number 001

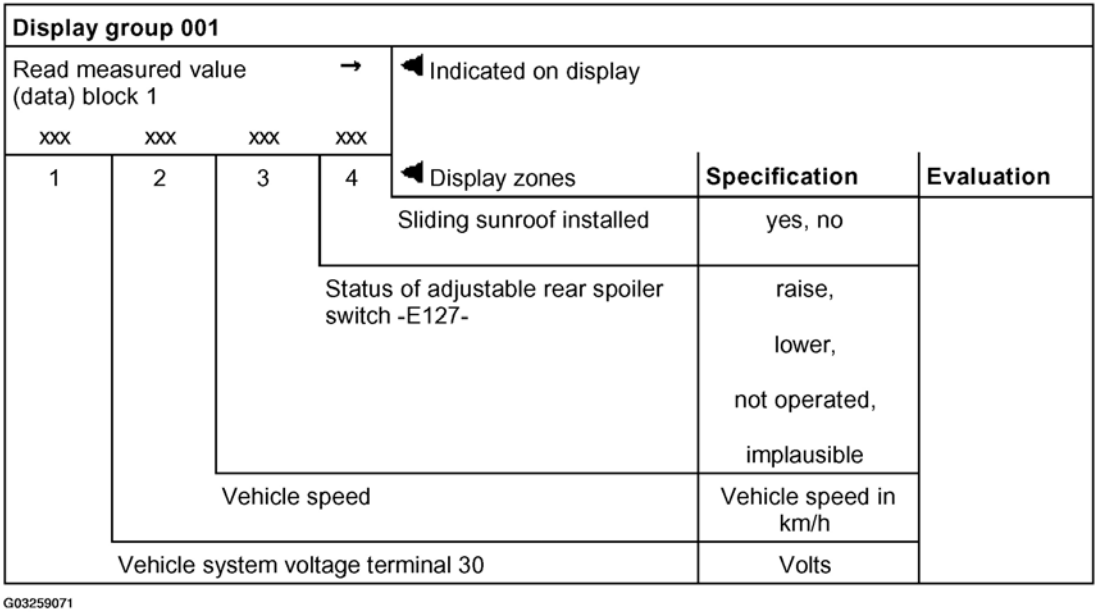


Fig. 271: Break Down Display Group 001 Chart - Rear Spoiler
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Evaluating display group number 001

EVALUATING DISPLAY GROUP NUMBER 001 - REAR SPOILER

Display zone	Designation	Display contents	Corrective action
1	Vehicle system voltage terminal 30	Volts	• Visual check of wiring • Check that connections of relevant current circuit are correctly connected and fit tightly together while simultaneously observing display • If the display does not change after checking connections, correct malfunction or replace relevant component • Erase DTC memory • Perform functional check • Check DTC memory again
2	Vehicle speed	Vehicle speed in km/h	
3	Status of adjustable rear spoiler switch - E127-	raise, lower, not operated, implausible	
4	Sliding sunroof installed	yes, no	

On Board Diagnostic (OBD) - New Beetle (Instrument Cluster, Data Bus & Anti-theft Immobilizer)

INSTRUMENT CLUSTER UP TO 06.99, ON BOARD DIAGNOSTIC (OBD)

GENERAL INFORMATION

The instrument cluster is controlled by an internal microprocessor with On Board Diagnostic (OBD) capability. If malfunctions occur in monitored sensors and components, Diagnostic Trouble Codes (DTC) will be stored in memory together with an indication of malfunction type. A maximum of 4 DTCs can be stored simultaneously.

Sporadic malfunctions (indicated in the readout by "SP") are automatically cancelled if not repeated in the next 50 engine start cycles.

For OBD purposes, the instrument cluster counts one start cycle whenever the ignition is switched on longer than 5 min. and a minimum speed of 30 km/h (18.5 mp/h) is exceeded.

Before performing any troubleshooting or inspection, always begin by checking for DTCs using the OBD program. DTCs stored in memory are retrieved/checked with either the VAG 1551/1552 Scan Tool (ST) or VAS 5051 Vehicle Diagnostic Tester.

NOTE: The following description and illustrations deal specifically with the VAG 1551 scan tool. VAG 1552 and VAS 5051 procedures are similar.

Additional information:

- Complaint/symptom based Technical Bulletins ("Service Fixes"): Check for Technical Bulletins.
- Instrument cluster, see **INSTRUMENTS** .

Notes on exchanging instrument cluster

- Do not disassemble instrument cluster.
- When replacing an instrument cluster is necessary, follow normal exchange part procedures.
- Complete report form and return together with instrument cluster.
- Use original packaging from new cluster when returning items.
- Replacement instrument clusters must first be coded according to vehicle market version and equipment level variables using VAG 1551 Scan Tool (ST)
- Odometer reading must also be adapted to the replacement instrument cluster. See **ODOMETER READING UP TO 06.98 MODELS, ADAPTATION** .

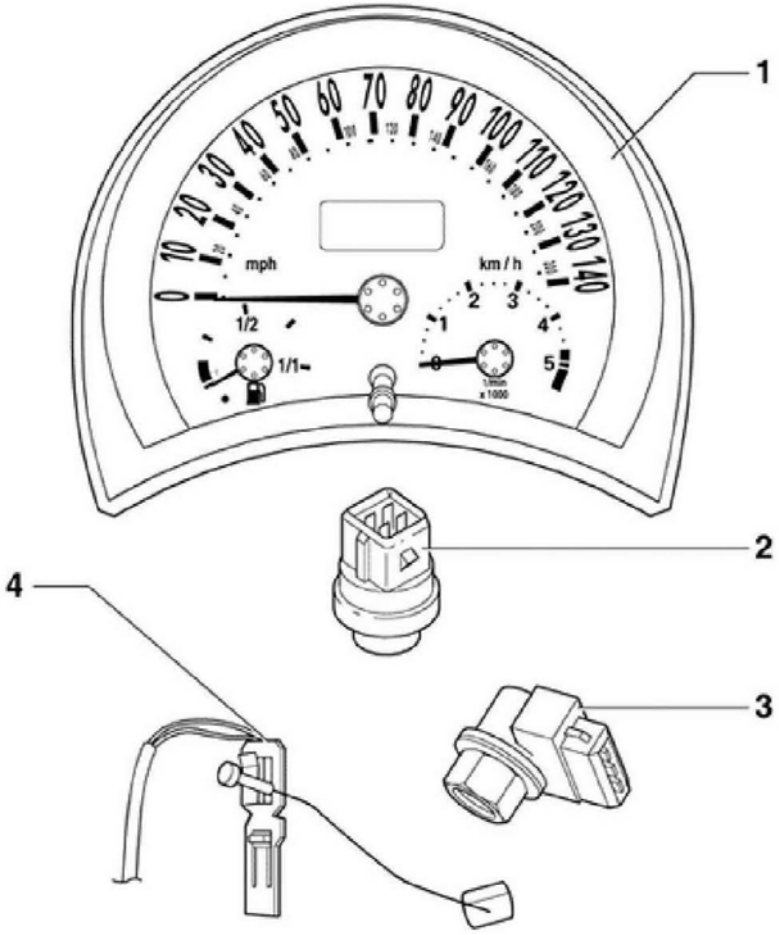
ELECTRICAL & ELECTRONIC COMPONENTS, LOCATIONS

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**
- **Disconnect negative (-) battery terminal.**
- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified.**

NOTE: The following list refers to items in Fig. 1 .

1. **Instrument cluster -K-**
   - Monitored by OBD
2. **Engine Coolant Temperature (ECT) sensor -G2-**
   - Location, See **Fig. 2**
   - Monitored by OBD
3. **Speedometer Vehicle Speed Sensor (VSS) -G22-**
   - Location, See **Fig. 3**
   - Monitored by OBD
4. **Sender for fuel gauge -G-**
   - Location, See **Fig. 4**
   - Monitored by OBD



1 - Instrument cluster - K-

2 - Engine Coolant Temperature (ECT) sensor -G2-

3 - Speedometer Vehicle Speed Sensor (VSS) -G22-

4 - Sender for fuel gauge -G-

Fig. 1: Identifying Instrument Cluster Electrical & Electronic Components - Up To 06.99
Courtesy of VOLKSWAGEN OF AMERICA, INC.

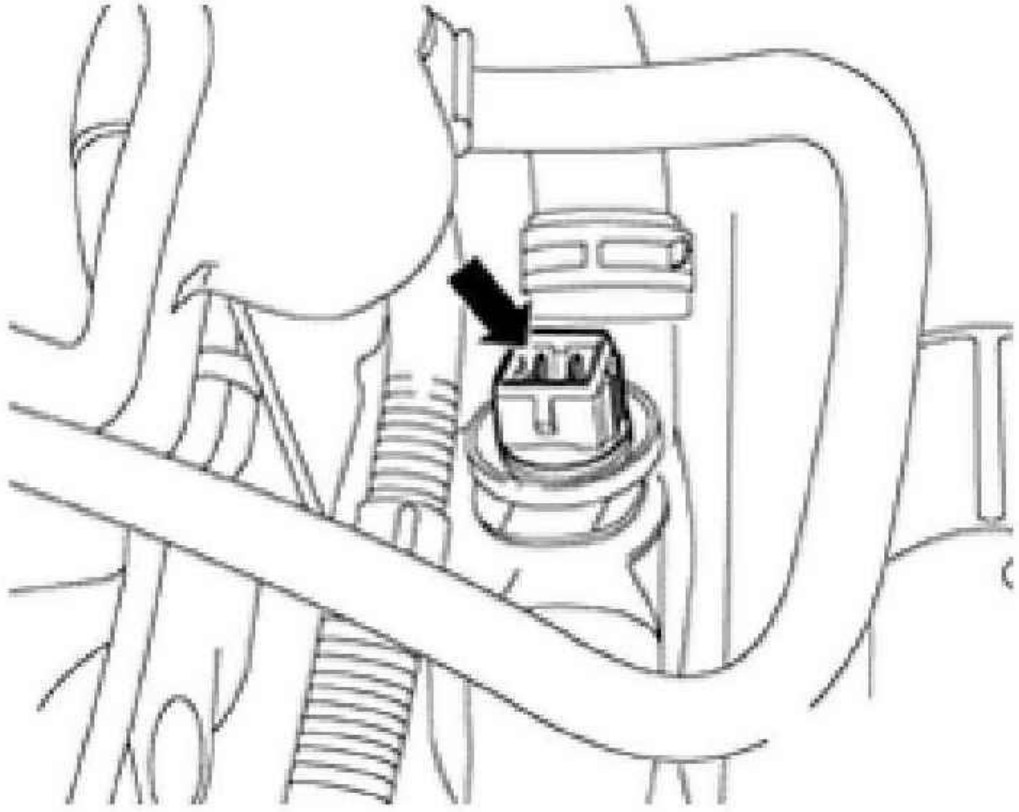
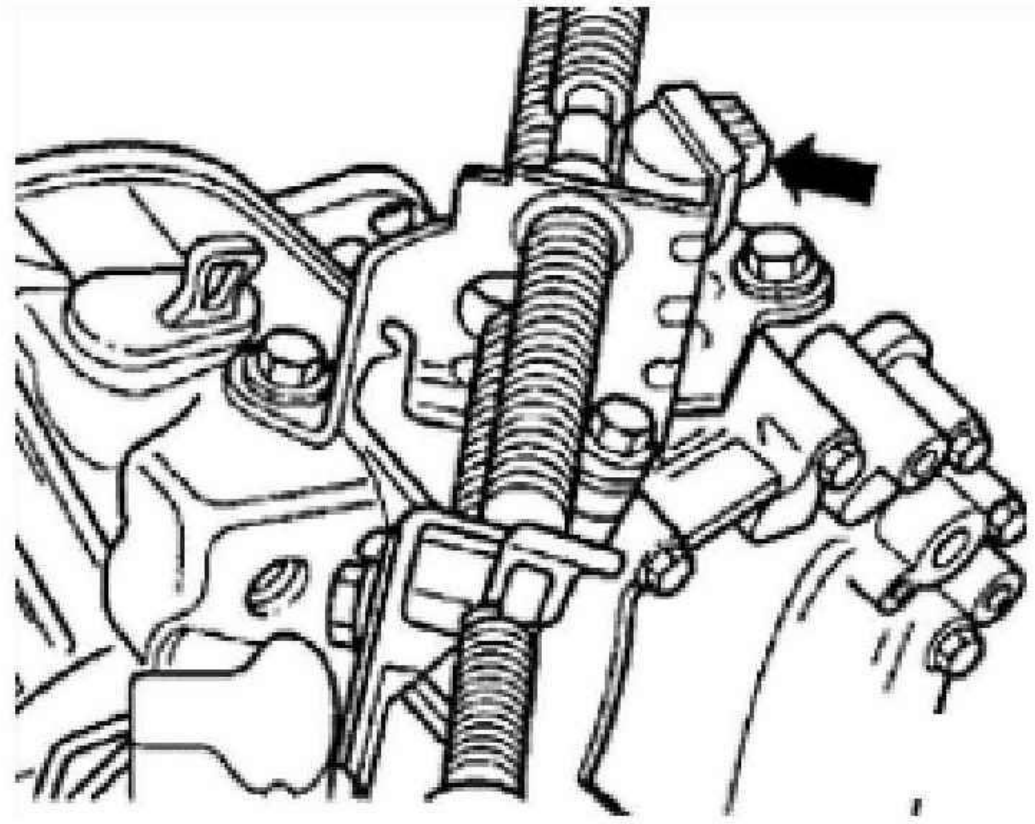


Fig. 2: Identifying Engine Coolant Temperature (ECT) Sensor
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The engine coolant temperature sensor is installed in the coolant return (arrow), located between the cylinder head and the radiator.



G03259902

Fig. 3: Identifying Speedometer Vehicle Speed Sensor (VSS)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The speedometer vehicle speed sensor (arrow) is located at the rear of the transmission. See **Fig. 3** .

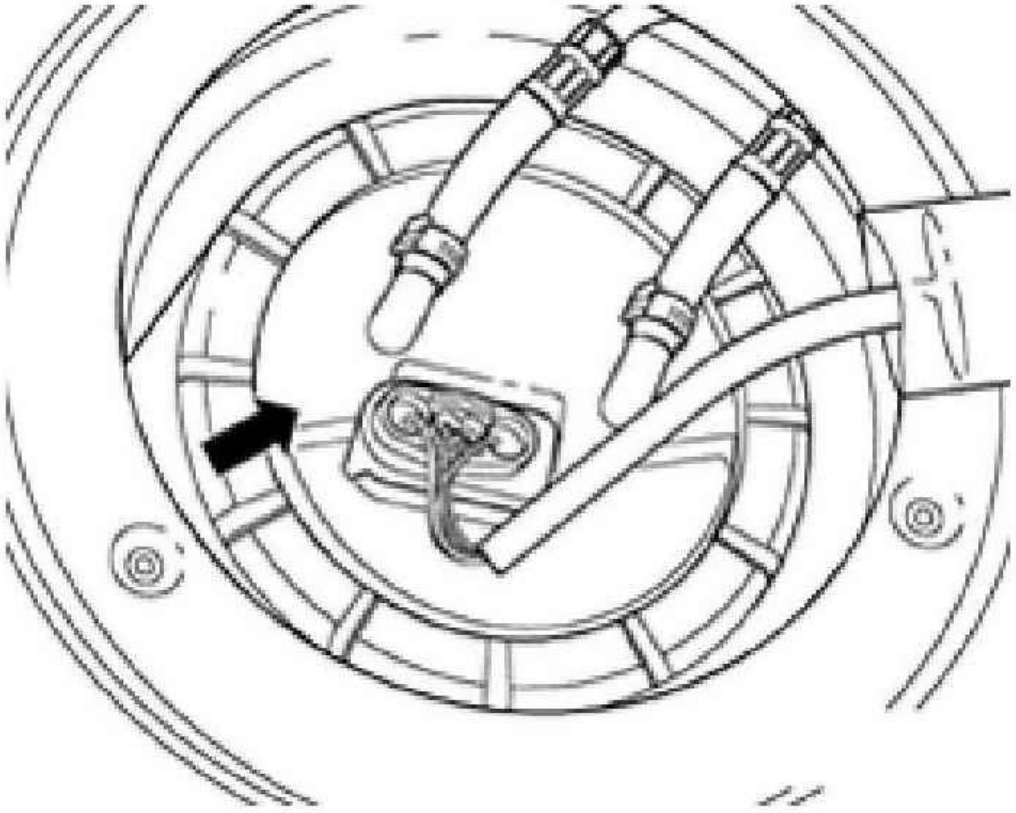


Fig. 4: Identifying Fuel Level Sensor
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The fuel level sensor is integrated into fuel pump module (arrow). See **Fig. 4** .

Both components are located in the fuel tank and are accessible under the rear seat on the right side.

VAG 1551 SCAN TOOL (ST), CONNECTING, SELECTING FUNCTIONS & CHECKING CONTROL MODULE VERSIONS

Special tools, testers, and auxiliary items

- VAG 1551 or VAG 1552 Scan Tool (ST)
- Optional: VAS 5051 Vehicle Diagnostic Tester

Fig. 5: Identifying VAG 1551 Or VAG 1552 Scan Tool (ST)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- VAG 1551/3 or 1551/3B adapter cable

Fig. 6: Identifying VAG 1551/3 Or 1551/3B Adapter Cable
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Prerequisites:

- All fuses OK according to wiring diagram.
- Battery (B+) voltage at least 9 Volts.

NOTE:

- **VAG 1552 Scan Tool (ST) may be used instead of the VAG 1551 Scan Tool (ST), however a print-out is not possible.**
- **The following procedure and display references pertain only to VAG 1551 Scan Tool (ST).**

Connecting

With ignition switched off, connect VAG 1551 Scan Tool (ST) with adapter cable 1551/3 to the Data Link Connector (DLC) located above ashtray

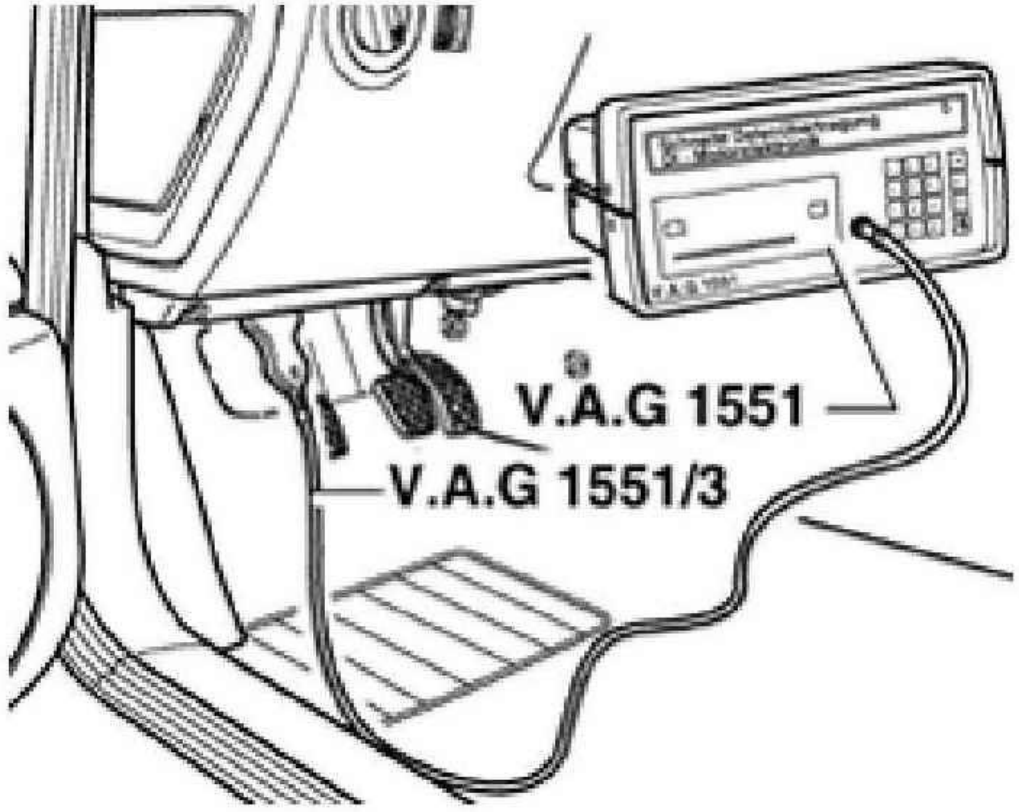


Fig. 7: Connecting VAG 1551 Scan Tool To Data Link Connector
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

* Is displayed alternately. See **Fig. 8** .

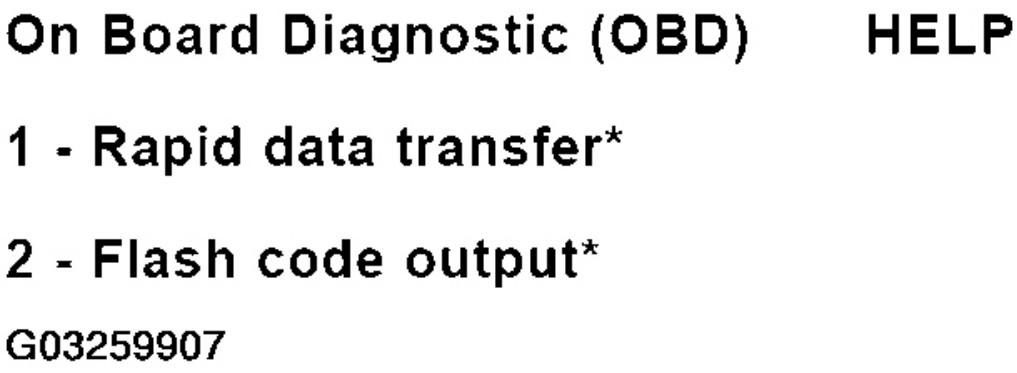


Fig. 8: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (1 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE:

- **If display remains blank, check Scan Tool (ST) voltage supply according to wiring diagram.**

  See SYSTEM WIRING DIAGRAMS.

- **Additional operating instructions can be called up by pressing HELP button.**
- **The --> button is used to advance through program sequence.**
- **In operating mode 1 "Rapid data transfer," function 00 "Automatic test sequence" can be carried out. The DTC memory of all control modules with OBD capability are checked automatically.**

- Switch on ignition.
- Switch on printer with the Print button (indicator lamp in button lights up).
- Press button 1 for "Rapid data transfer" mode.

Indicated on display:

- Press buttons -1- and -7- to select instrument cluster address word 17.

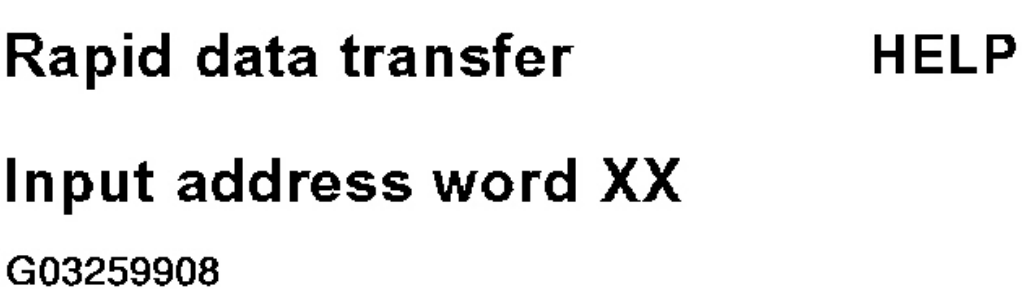


Fig. 9: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (2 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Press -Q- button to confirm input.

Fig. 10: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (3 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

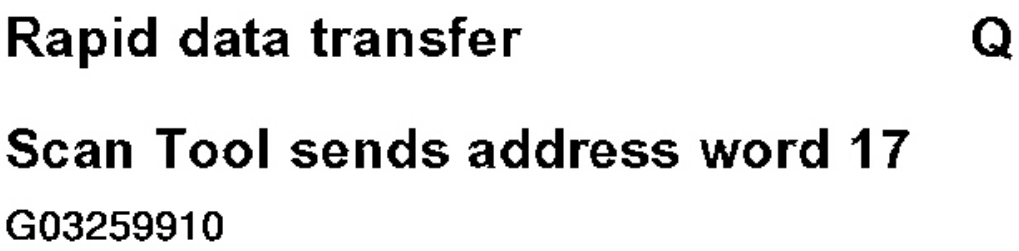


Fig. 11: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (4 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Control module version, checking

Indicated on display (example only): Readout, top line

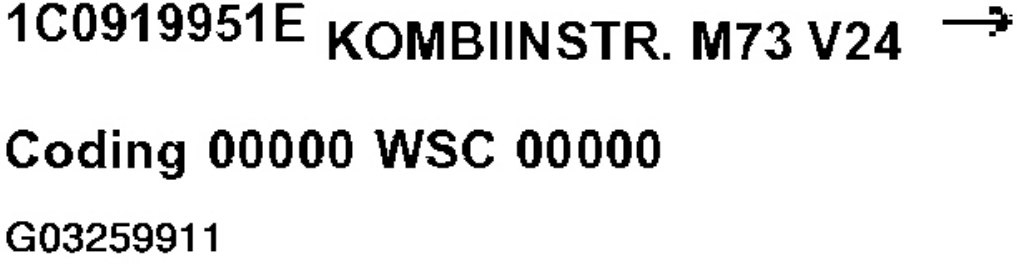


Fig. 12: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (5 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- C0 919 951 E: Part No. of control module
- KOMBIINSTR: Component designation
- M73: Manufacturer's code (example: Magneti Marelli)
- V24: Software version installed in instrument cluster

Readout, bottom line

- Coding 00000 (Depends on engine, transmission and brake system.): Coding of instrument cluster

- WSC 00000 (Will be automatically stored in the control module when entering the system.): Dealership number

CAUTION: Part numbers are for reference only. Always check with your Parts Department for the latest parts information.

- Press --> button.

Indicated on display

Fig. 13: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (6 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

By pressing the HELP button, a list of possible malfunction causes is printed out.

- After repairing malfunctions, re-enter address word 17 for instrument cluster and confirm with -Q- button.

Indicated on display (example only)

- Press --> button.

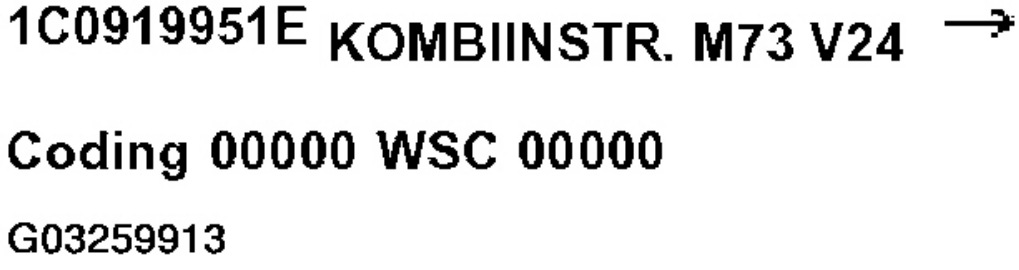


Fig. 14: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (7 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Press "HELP" button to print out a list of possible malfunction causes.

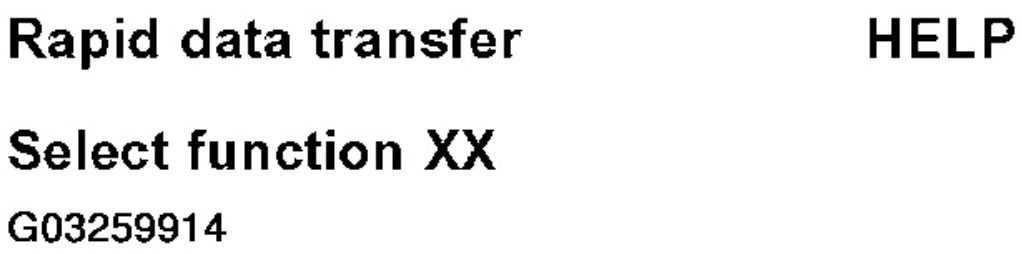


Fig. 15: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (8 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

List of available functions

LIST OF AVAILABLE FUNCTIONS (UP TO 06.99)

Function No.	Function Description	See
01 -	Check control module version	VAG 1551 SCAN TOOL (ST), CONNECTING, SELECTING FUNCTIONS & CHECKING CONTROL MODULE VERSIONS .
02 -	Check Diagnostic Trouble Code (DTC) memory	DIAGNOSTIC TROUBLE CODE (DTC) MEMORY, CHECKING (FUNCTION 02)
03 -	Output Diagnostic Test Mode (DTM)	OUTPUT DIAGNOSTIC TEST MODE (DTM) (FUNCTION 03)
05 -	Erase DTC memory	DIAGNOSTIC TROUBLE CODE (DTC) MEMORY, ERASING (FUNCTION 05)
06 -	End output	END OUTPUT (FUNCTION 06)
07 -	Code control module	INSTRUMENT CLUSTER, CODING (FUNCTION 07)
08 -	Read measuring value block	READ MEASURING VALUE BLOCK (FUNCTION 08)
10 -	Adaptation	ADAPTATION (FUNCTION 10)

NOTE:

- **Press HELP button to print out a complete list of available functions. This**

list indicates function capability of VAG 1551 Scan Tool (ST) only, and does not necessarily reflect function capability of vehicle systems equipped with OBD. For instrument cluster address word 17, do not attempt to select functions other than those listed above.

- **After function is completed and forwarded with --> button, VAG 1551 Scan Tool (ST) returns to following start position:**

Indicated on display (select function):

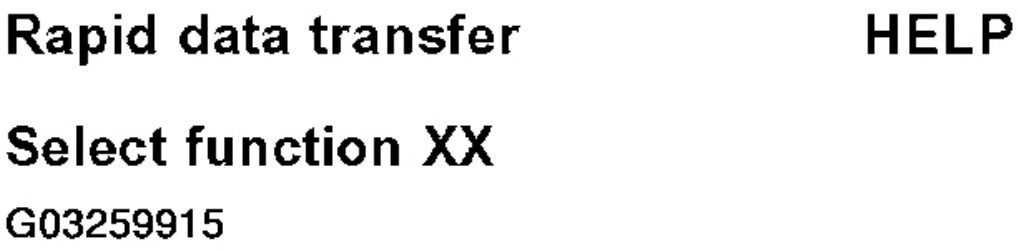


Fig. 16: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (9 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

DIAGNOSTIC TROUBLE CODE (DTC) MEMORY, CHECKING (FUNCTION 02)

NOTE: The displayed DTC information is updated only when initiating OBD or with "Erase DTC Memory" function 05.

- Switch printer on by pressing PRINT button (indicator lamp in button lights up).

Indicated on display

- Press buttons -0- and -2- to select "Check DTC Memory" function 02.

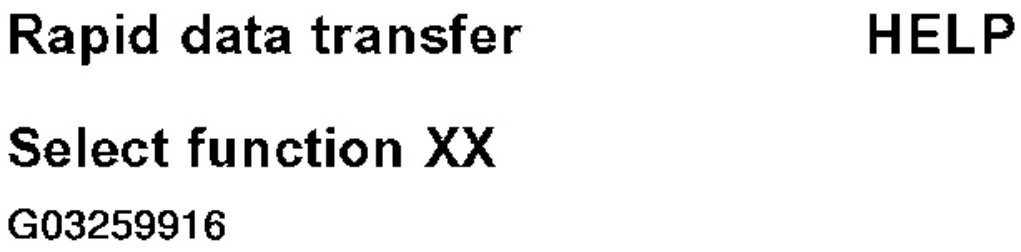


Fig. 17: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory, Up To 06.99 (1 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Press -Q- button to confirm input.

Fig. 18: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory, Up To 06.99 (2 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The number of stored DTCs appears on the display.

Stored DTCs are displayed and printed out one after another.

- Check print-out against DTC table and repair all malfunctions as necessary. See **DIAGNOSTIC TROUBLE CODE (DTC) TABLE** .

Fig. 19: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory, Up To 06.99 (3 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

If "No DTC recognized" is displayed the program will return to the initial position after pressing --> button.

Fig. 20: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory, Up To 06.99 (4 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

If something else is displayed:

See Scan Tool operating instructions

- End output (function 06). See **END OUTPUT (FUNCTION 06)** .
- Switch ignition off.
- Disconnect Data Link Connector (DLC).

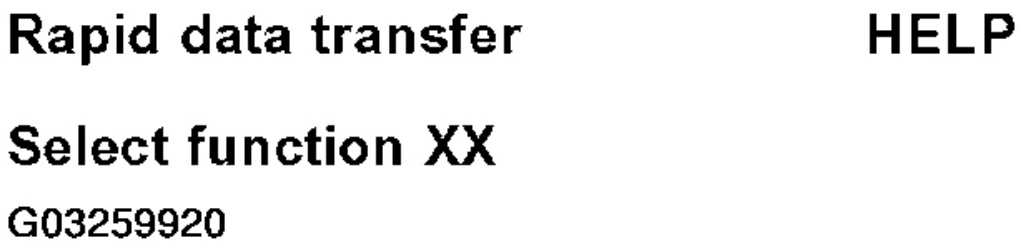


Fig. 21: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory, Up To 06.99 (5 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

DIAGNOSTIC TROUBLE CODE (DTC) TABLE

NOTE:

- **The following table lists all malfunctions, with the corresponding 5 digit code numbers, that can be recognized by control module with indicator unit in instrument cluster insert -J285- and printed out by the VAG 1551 Scan Tool (ST).**
- **If malfunctions do not occur regularly, these are displayed as occurring sporadically ("SP").**
- **DTC codes appear only on print-out.**
- **Before replacing components, check the wiring and connections to these components as well as ground connections, according to wiring diagram.**
- **When repair has been carried out, the Diagnostic Trouble Code (DTC) memory must always be erased and checked again with VAG 1551 Scan Tool (ST).**
- **If there is a specific complaint and no malfunctions are recognized after checking Diagnostic Trouble Code (DTC) memory, carry out function 03 OUTPUT DIAGNOSTIC TEST MODE (DTM) (FUNCTION 03) or function 08 READ MEASURING VALUE BLOCK (FUNCTION 08) .**

DIAGNOSTIC TROUBLE CODES (UP TO 06.99)

VAG 1551 print out	Possible cause	Possible effects	Corrective action
00771* Sender for fuel gauge - G • Open/short circuit to B+ • Short circuit to	• Open circuit or short circuit between -G- and instrument cluster • G- malfunctioning	• Fuel gauge display shows reserve 0 ("empty") and fuel reserve warning lamp lights up	• Check for open or short circuit in wiring using wiring diagram. • Replace sender for fuel gauge - G-.

Ground			
01039 Engine Coolant Temperature (ECT_ Sensor -G2 • Short circuit to Ground	• Open circuit or short circuit between -G2- and instrument cluster • ECT sensor-G2- malfunctioning	• Coolant temperature gauge needle on left stop	• Check for short circuit in wiring using wiring diagram. • Replace ECT sensor -G2-.
01086 Speedometer Vehicle Speed Sensor (VSS) - G22 • Signal too large	• G22- malfunctioning	• Incorrect speedometer display	• Replace VSS sensor -G22-
65535 Control Module • Malfunctioning		• Instrument cluster malfunctioning	• Replace instrument cluster.

OUTPUT DIAGNOSTIC TEST MODE (DTM) (FUNCTION 03)

The output Diagnostic Test Mode (DTM) is part of the electrical check. The following components can be checked via the output diagnostic test mode:

- Speedometer
- Tachometer
- Fuel gauge
- Odometer display
- Oil pressure warning buzzer
- Fuel reserve warning light
- Coolant temperature/engine coolant level indicator warning light
- Oil pressure warning light
- Dual brake circuit and parking brake system warning light
- All warning lights for the vehicle optional equipment

- If there is a malfunction during output DTM, replace instrument cluster.
- If no malfunction is identified during output DTM, check wiring and connections to instrument cluster.

Output Diagnostic Test Mode (DTM), initiating

NOTE:

- **Output Diagnostic Test Mode (DTM) cannot be initiated or will be interrupted if engine is running or vehicle is moving,**
- **Use -C- button to exit test sequence at any time.**

- Connect VAG1551 scan tool, select "Rapid data transfer" operating mode 1, switch ignition on, and input "Instrument Cluster" address word 17.

Indicated on display

- Press buttons -0- and -3- to select function 03 "Output Diagnostic Test Mode".

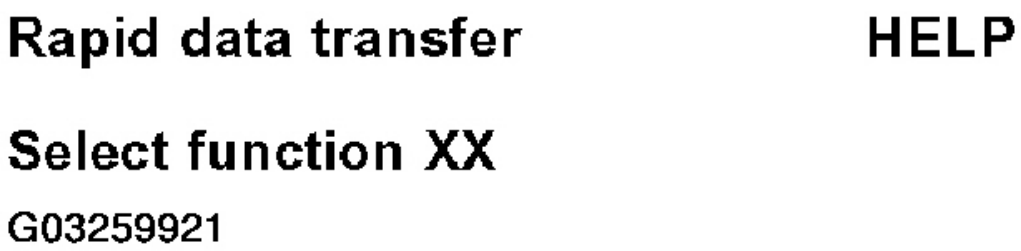


Fig. 22: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode, Up To 06.99 (1 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Press -Q- button to confirm input.

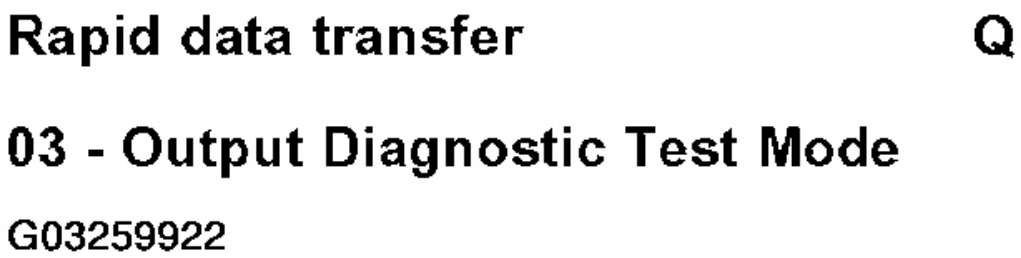


Fig. 23: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode, Up To 06.99 (2 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

No indication on all displays and all warning lights to be checked are unlit.

Indicated on display

After pressing --> button, the following instrumental functional checks will occur simultaneously:

- Tachometer needle moves over complete display range
- Speedometer needle moves over complete display range
- Fuel gauge needle moves over complete display range

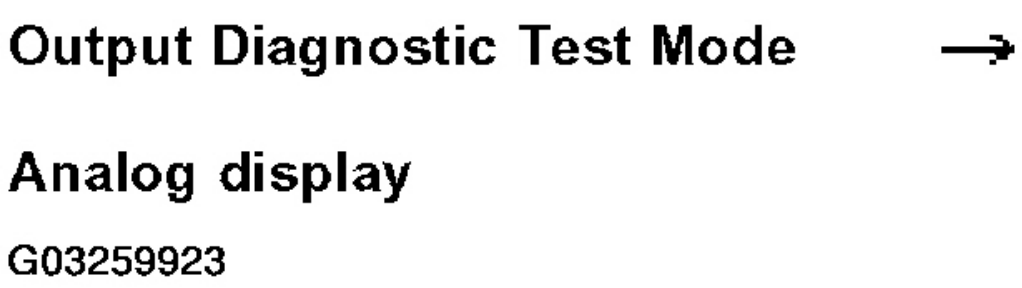


Fig. 24: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode, Up To 06.99 (3 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

After checking movement over display ranges, the following constant values are displayed:

- Tachometer: 3000 RPM
- Speedometer: 100 km/h (65 mph)
- Fuel gauge: 1/2
    - Press --> button.

      The analog displays again indicating all actual values.

Indicated on display

The following warning lights light up continuously:

- Coolant temperature/engine coolant level indicator
- Dual brake circuit and parking brake system
- Oil pressure
- Fuel reserve
    - Press --> button.

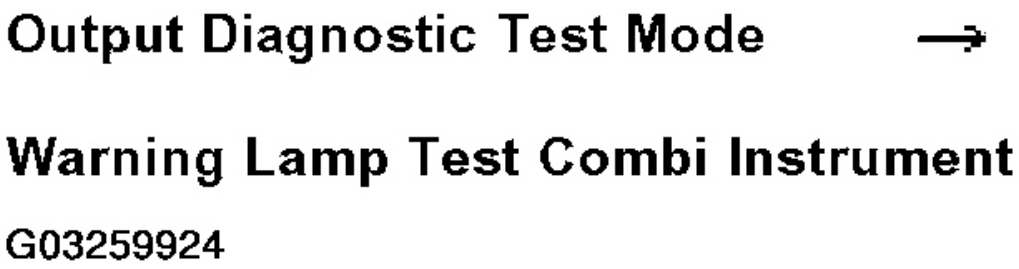


Fig. 25: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode, Up To 06.99 (4 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

Seat belt warning light -K19- lights

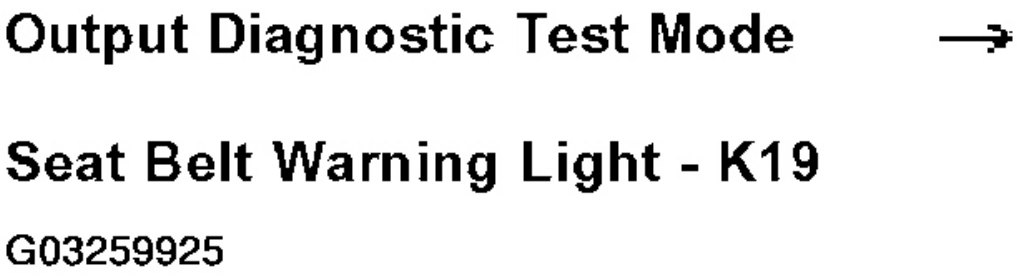


Fig. 26: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode, Up To 06.99 (5 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

Oil pressure warning buzzer is activated intermittently

- Press --> button.

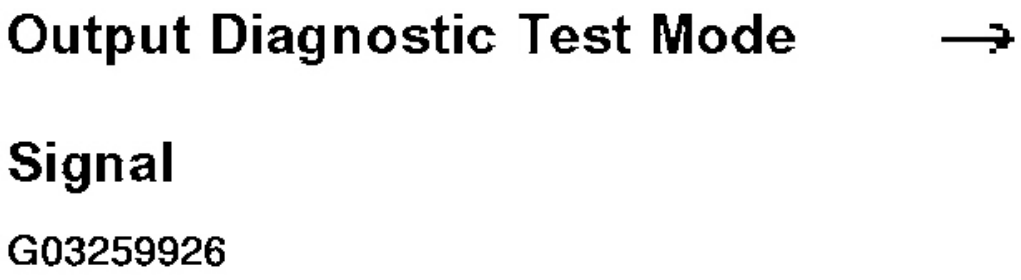


Fig. 27: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode, Up To 06.99 (6 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

All liquid crystal segments in speedometer display are activated and become visible.

- Press --> button.

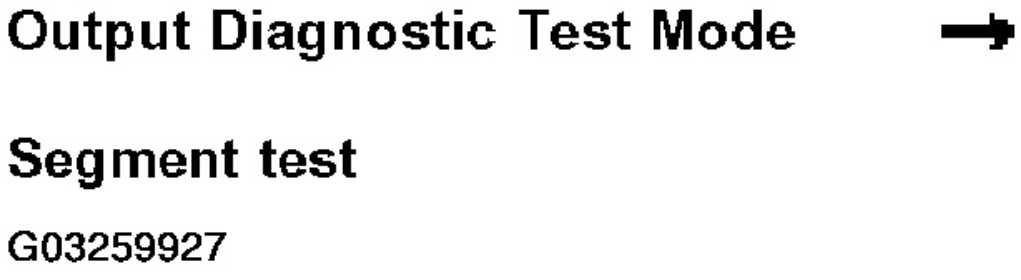


Fig. 28: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode, Up To 06.99 (7 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

Coolant temperature/engine coolant level indicator warning light is activated.

Safety function (high coolant temperature cut-out for the A/C clutch) is activated approx. 5 seconds later.

- Press --> button.

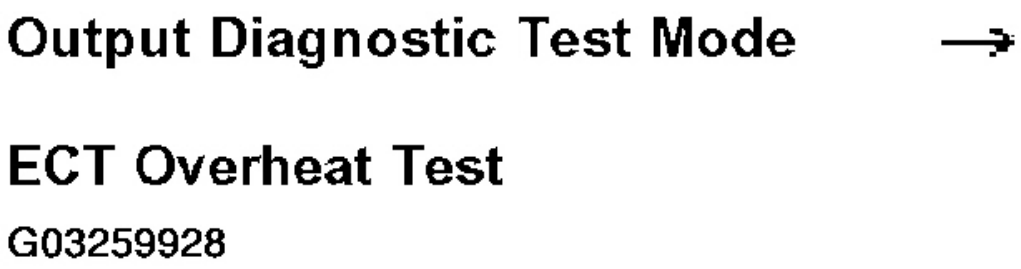


Fig. 29: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode, Up To 06.99 (8 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display for instrument clusters with manufacturer code M73:

- Press --> button.

  All actual values are displayed again.

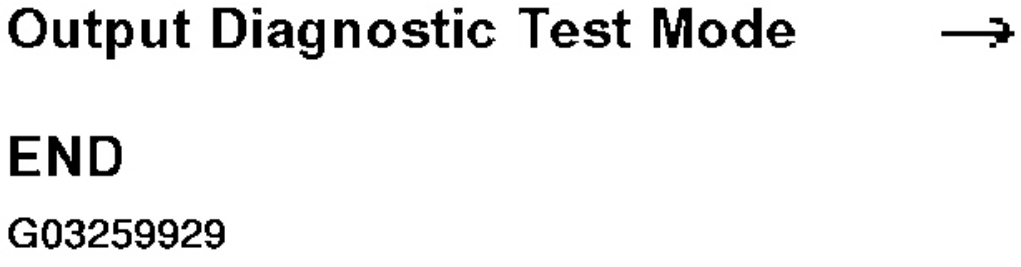


Fig. 30: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode, Up To 06.99 (9 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Press buttons -0- and -6- to select function "End Output" function 06.

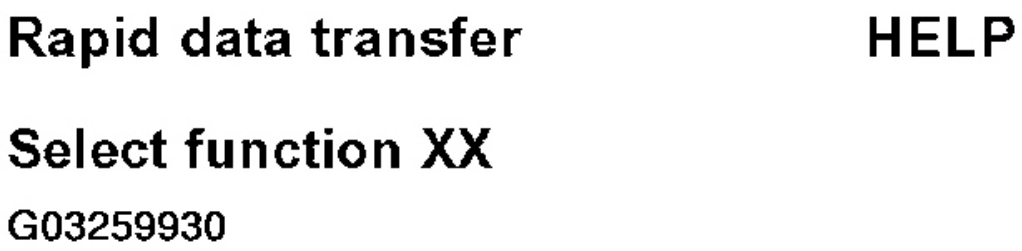


Fig. 31: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode, Up To 06.99 (10 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Press -Q- button to confirm input.

Fig. 32: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode, Up To 06.99 (11 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

The scan tool returns to the start of the program sequence.

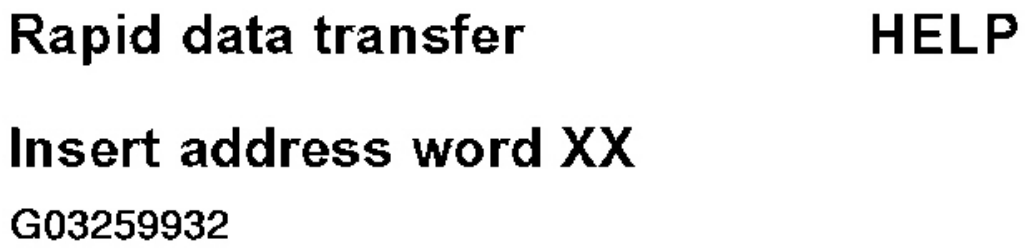


Fig. 33: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode, Up To 06.99 (12 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

DIAGNOSTIC TROUBLE CODE (DTC) MEMORY, ERASING (FUNCTION 05)

NOTE: After erasing DTC memory its contents will automatically be indicated. If DTC memory cannot be erased, check DTC memory again and repair malfunctions.

Requirement

- DTC memory checked, See **DIAGNOSTIC TROUBLE CODE (DTC) MEMORY, CHECKING (FUNCTION 02)** .
- All malfunctions repaired

After DTC memory has been successfully checked.

Indicated on display

- Press buttons -0- and -5- to select "Erase DTC Memory" function 05.

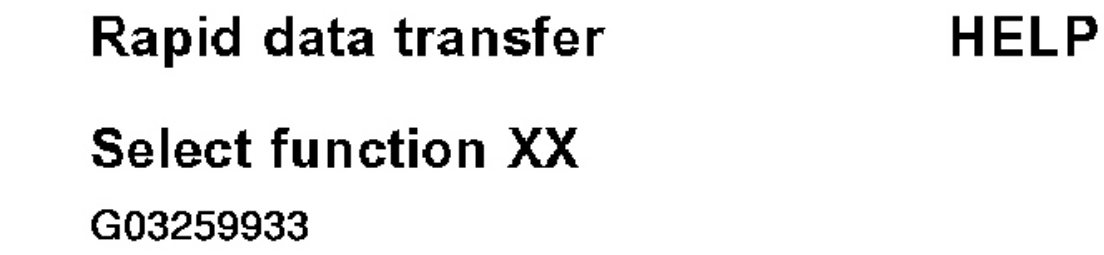


Fig. 34: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Erasing, Up To 06.99 (1 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Press -Q- button to confirm input.

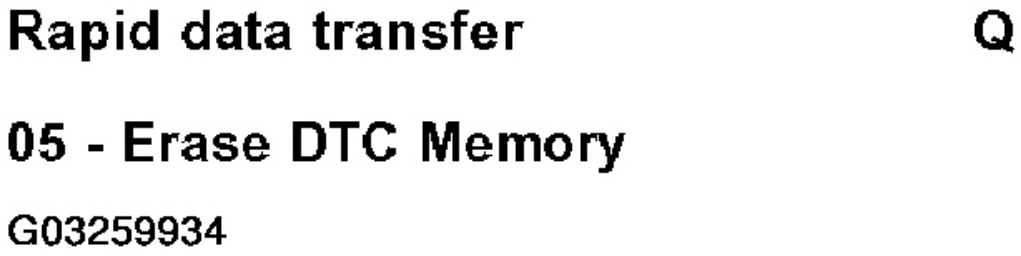


Fig. 35: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Erasing, Up To 06.99 (2 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

DTC memory is now erased.

- Press --> button.

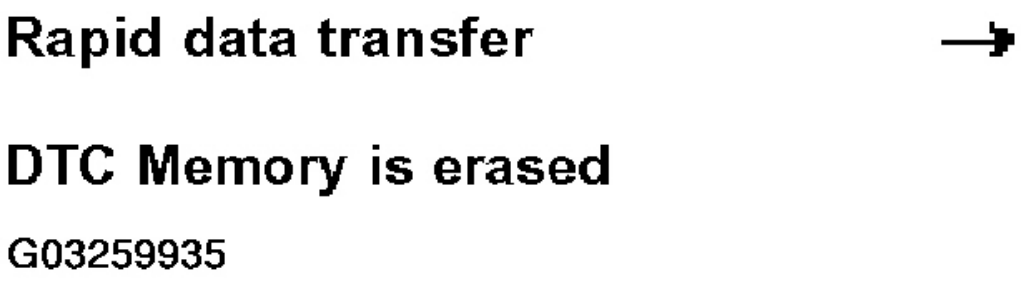


Fig. 36: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Erasing, Up To 06.99 (3

Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display Notes:

NOTE:

- **If "DTC Memory is not interrogated" appears on the display, the test sequence has not been performed correctly.**

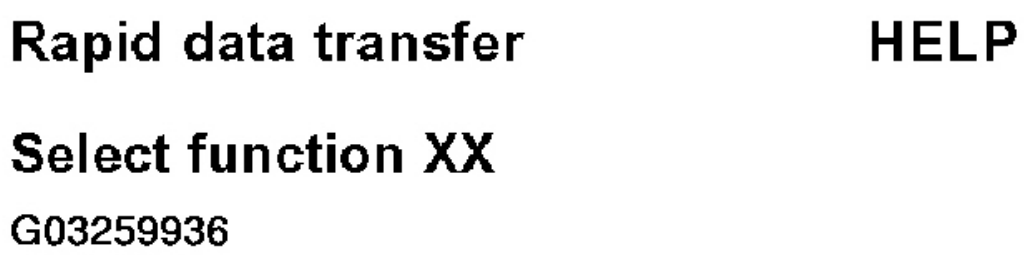


Fig. 37: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Erasing, Up To 06.99 (4 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Fig. 38: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Erasing, Up To 06.99 (5 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- **If this appears on the display, the test sequence has not been performed correctly.**

- **Follow the test sequence exactly, i.e. first check DTC memory, repair malfunctions if necessary, then erase DTC memory.**

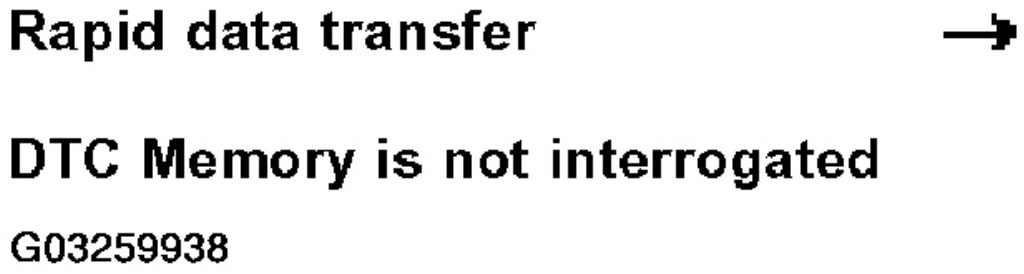


Fig. 39: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Erasing, Up To 06.99 (6 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

END OUTPUT (FUNCTION 06)

- Press buttons -0- and -6- to select function "End Output" function 06.

Indicated on display

- Press -Q- button to confirm input.

Fig. 40: VAG 1551 Scan Tool Display - End Output, Up To 06.99 (1 Of 2)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Switch ignition off.
- Disconnect Data Link Connector (DLC).

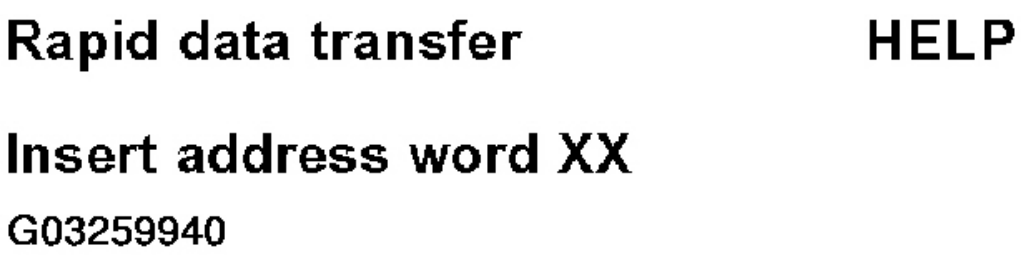


Fig. 41: VAG 1551 Scan Tool Display - End Output, Up To 06.99 (2 Of 2)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

INSTRUMENT CLUSTER, CODING (FUNCTION 07)

Use this function to code the control module with indicator unit in instrument cluster -J285- with the following information:

- Available equipment
- Market version
- Number of cylinders
- Code for distance impulse number ("K"-number)
    - Press buttons -0- and -7- to select function 07 "Code Control Module".
    - Press -Q- button to confirm input.

Indicated on display

- Confirm vehicle applicable market, model and equipment particulars, determine and enter code number from code table. See **INSTRUMENT CLUSTER CODE TABLE (UP TO 06.99)** . .

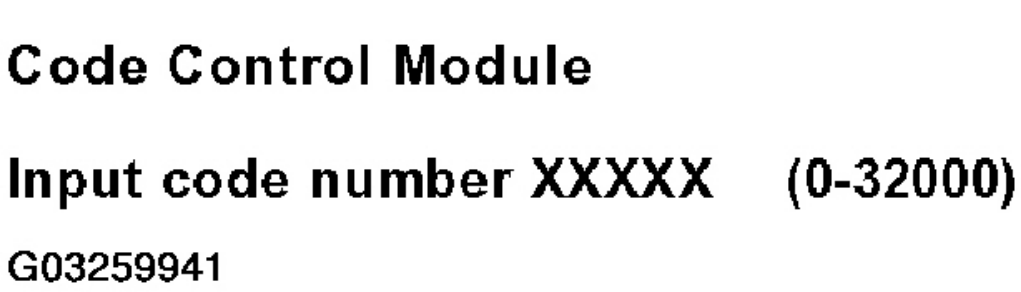


Fig. 42: VAG 1551 Scan Tool Display - Instrument Cluster Coding, Up To 06.99 (1 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Example:

03 Code for available equipment

2 USA

4 4-cylinder

2 Code for distance impulse number ("K" number)

INSTRUMENT CLUSTER CODE

Code	Place In Code	Explanation
XX	1st & 2nd Digits	Available equipment(1)
01	1st & 2nd Digits	Brake pad wear indicator, active
02	1st & 2nd Digits	Seat belt warning, active
X	3rd Digit	Market version
2	3rd Digit	USA (US)
3	3rd Digit	Canada (CDN)
X	4th Digit	Number of cylinders (4 = 4-Cylinder)
X	5th Digit	Code number for travel impulse (K number). Example:2 - 3538

(1) If more than one type of optional equipment is to be entered, then the code numbers must be added together. Example, Brake pad wear indicator and seat belt warning active: Available equipment coding 01 + 02 = 03.

Indicated on display (example only)

- Press -Q- button to confirm input.

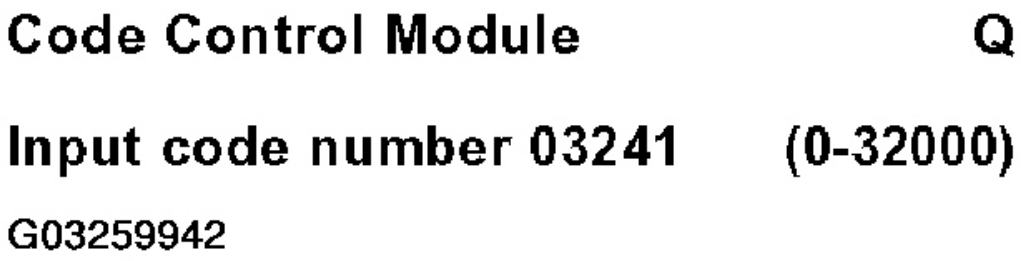


Fig. 43: VAG 1551 Scan Tool Display - Instrument Cluster Coding (2 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display (example only)

- Press --> button.

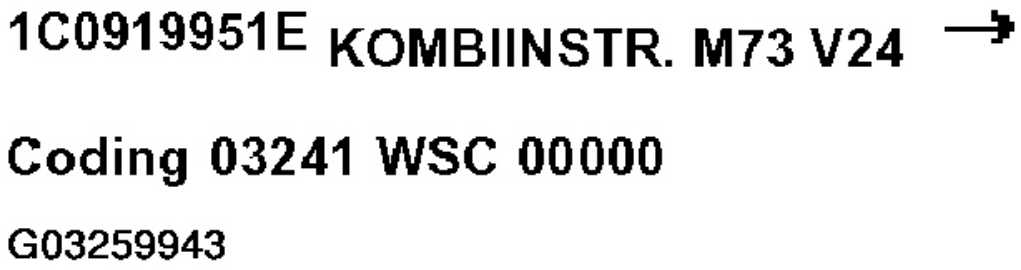


Fig. 44: VAG 1551 Scan Tool Display - Instrument Cluster Coding, Up To 06.99 (3 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

End output:

- Press buttons -0- and -6- to select "End Output" function 06.

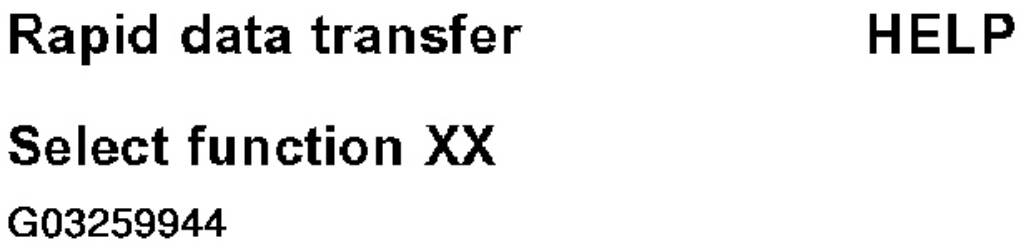


Fig. 45: VAG 1551 Scan Tool Display - Instrument Cluster Coding, Up To 06.99 (4 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Press -Q- button to confirm input.

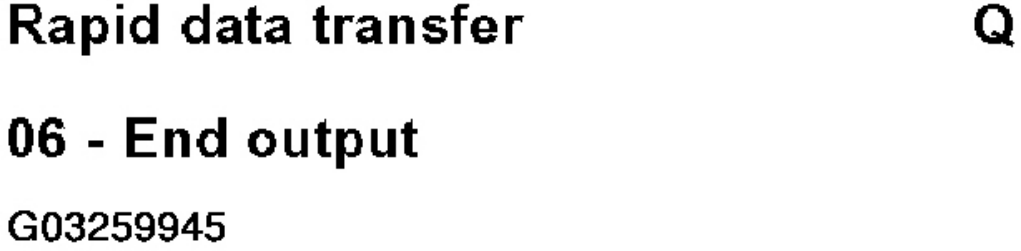


Fig. 46: VAG 1551 Scan Tool Display - Instrument Cluster Coding, Up To 06.99 (5 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

The scan tool returns to the start of the program sequence.

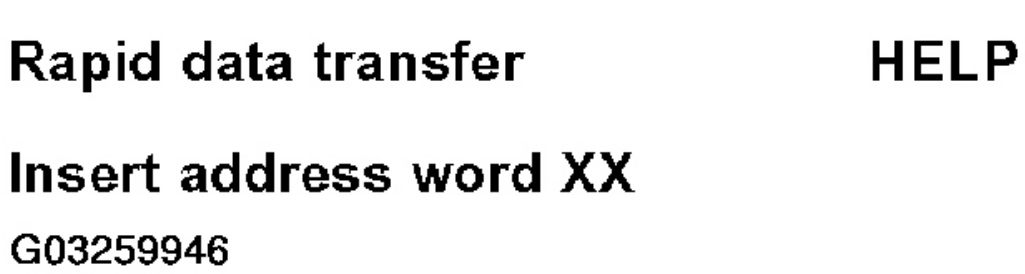


Fig. 47: VAG 1551 Scan Tool Display - Instrument Cluster Coding, Up To 06.99 (6 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

READ MEASURING VALUE BLOCK (FUNCTION 08)

Use this function to observe various instrument cluster inputs.

- Connect VAG 1551 Scan Tool (ST), select operating mode 1 "Rapid data transfer", switch on ignition and input address word 17 "Instrument cluster".

Indicated on display

- Press buttons -0- and -8- to select function 08 "Read Measuring Value Block".

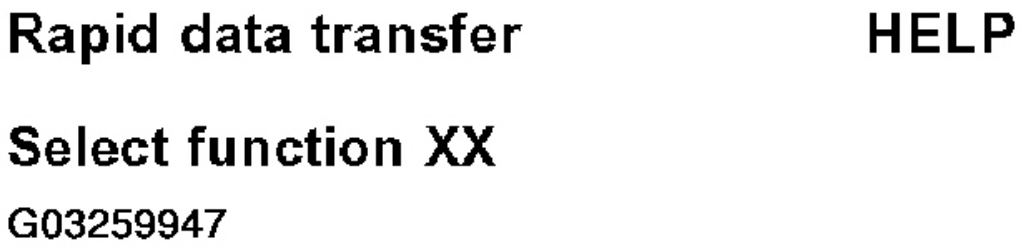


Fig. 48: VAG 1551 Scan Tool Display - Read Measuring Value Block, Up To 06.99 (1 Of 4)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Press -Q- button to confirm input.

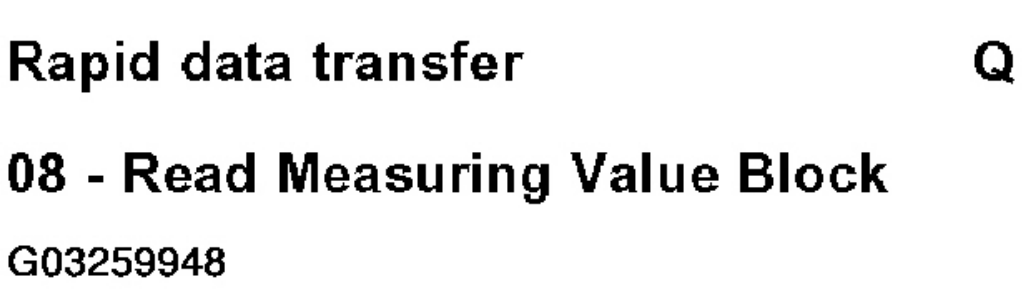


Fig. 49: VAG 1551 Scan Tool Display - Read Measuring Value Block, Up To 06.99 (2 Of 4)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

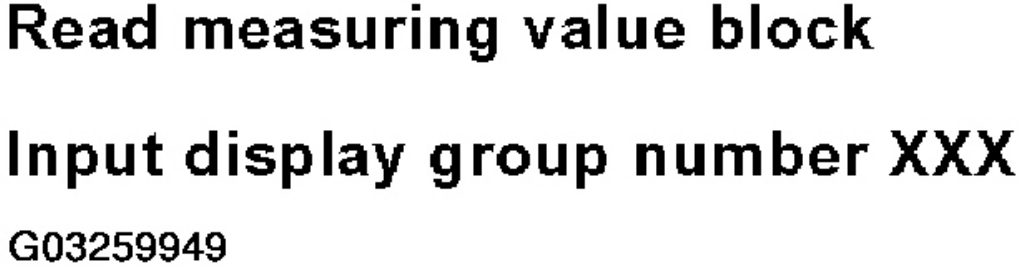


Fig. 50: VAG 1551 Scan Tool Display - Read Measuring Value Block, Up To 06.99 (3 Of 4)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

DISPLAY GROUPS, INTERPRETING

DISPLAY GROUPS (UP TO 06.99)

Display group	Indicated on display
001	1 Road speed (Km/h) 2 Engine speed (RPM) 3 Oil pressure switch 2 min. 4 Time (not for VDO)
002	1 Trip recorder (Km) 2 Fuel in liters

	3 Manufacturer code M73: ohm value = for fuel level sensor -G- Manufacturer code VDO: ambient temperature in °C 4 Manufacturer code M73: ambient = temperature in °C
003	1 Coolant temperature in °C

- Select relevant display group number, and press -Q- button to confirm input.

Example of measuring value block for Magneti Marelli instrument cluster -M73-:

- Press buttons -0-, -0- and -2- to input display group no. 002.

Indicated on display

INPUT DISPLAY VALUES (UP TO 06.99)

Displayed value	Designation
820 km	1 = Distance traveled
41 ltr.	2 = Fuel gauge
250 ohm	3 = ohm value of fuel level sensor -G-

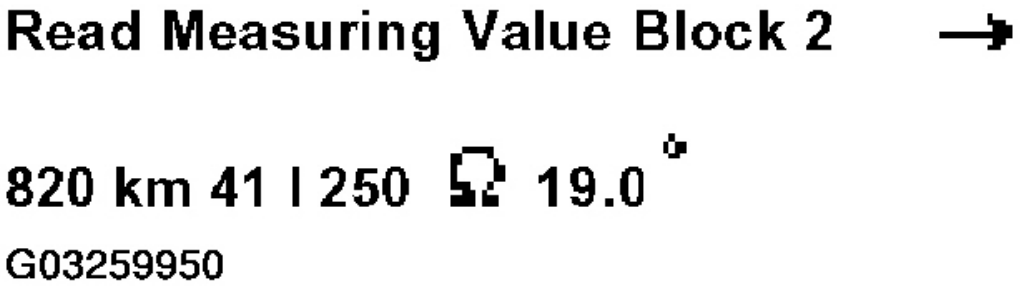


Fig. 51: VAG 1551 Scan Tool Display - Read Measuring Value Block, Up To 06.99 (4 Of 4)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE:

- **The actual sensor values are shown in the display field. The values in the instrument cluster are modified and may be different.**
- **The coolant temperature gauge will indicate 90° C (194°F), if the actual coolant temperature varies between approx. 75°C (167°F) and 107°C (225° F).**
- **For vehicles with VDO instrument cluster, if the fuel level sensor has an open or short circuit, display field 2 displays 0L and display field 3 remains empty.**

- **For vehicles with Magneti-Marelli instrument cluster -M73-, display field 2 displays 2L for short circuit and 67L for open circuit. Display field 3 displays 8 ohm for short circuit and > 350 ohm for an open circuit.**
- **Other display groups are possible, but are not required for troubleshooting.**

ADAPTATION (FUNCTION 10)

Use this function to initiate and store the following changes:

- Adaption of odometer reading when replacing/exchanging instrument cluster
- Adaption of fuel gauge reading

Individual functions can be called up using the appropriate adaptation channel number from adaptation table.

Adaptation table

ADAPTATION FUNCTIONS (UP TO 06.99)

Adaptation channel	Adaptation functions
09	Odometer Up To 06.98, adaptation See **ODOMETER READING UP TO 06.98 MODELS, ADAPTATION** Odometer 06.98 & Up, adaptation See **ODOMETER, ADAPTATION**
30	Fuel gauge, adaptation See **FUEL GAUGE, CHECKING (ADAPTATION)**

NOTE: **After changing an adaptation value or ending an adaptation channel the function "10 - adaptation" must be performed to select another adaptation channel!**

ODOMETER READING UP TO 06.98 MODELS, ADAPTATION

- Odometer reading adaptation for vehicles from 06.98, See **ODOMETER, ADAPTATION**
- Odometer reading adaptation using Vehicle Diagnostic, Testing and Information System VAS 5051 (all model years), See Additional Information, Odometer adaptation with VAS 5051.

NOTE:

- **Total distance travelled by the vehicle can be read from the malfunctioning instrument cluster or determined by vehicle service history.**
- **Total distance travelled display of new instrument cluster must not be more than 100 km (63 mi) before adaptation.**
- **Total distance travelled to be transferred to the new instrument cluster must exceed 100 km (63 mi).**
- **Adapting total distance travelled is only possible once and only in a**

positive (upwards) direction.

- **Adaptation can be interrupted with the "C" button of the VAG 1551/1552 Scan Tool (ST).**
- **Correcting a false entry which has been confirmed is not possible. The instrument cluster must be exchanged for a new one.**
- **Adaptation value on instrument clusters for Canadian models must be entered in kilometers.**
- **Adaptation value on instrument clusters for US models must be entered in miles.**

Example:

The malfunctioning instrument cluster has an odometer reading of 89627 (either kilometers or miles). The odometer display can be transferred to the new instrument cluster as follows:

- Connect VAG1551 Scan Tool (ST), select 1 "Rapid Data Transfer", switch on ignition, input address word 17 "Instrument Cluster".
- Press -Q- button to confirm input.

  Various data appears in the display. The manufacturer's code is also displayed, See **INSTRUMENT CLUSTER 06.99, ON BOARD DIAGNOSTIC (OBD)** .

- Press --> button.

Indicated on display

- Press button -1- twice to select "Login Procedure" function 11
- Press -Q- button to confirm input.

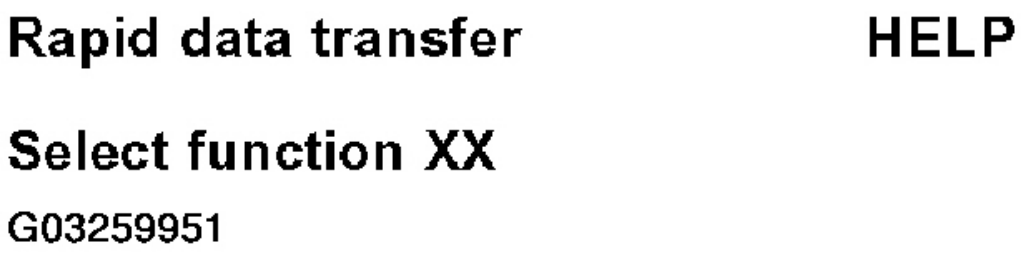


Fig. 52: VAG 1551 Scan Tool Display - Adaptation, Up To 06.98 Models (1 Of 17)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Press -Q- button to confirm input.

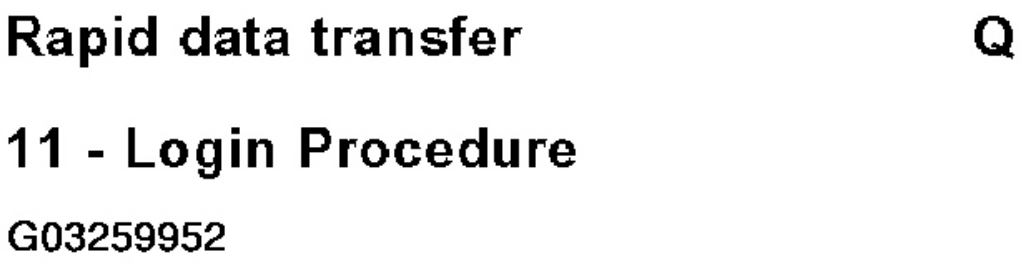


Fig. 53: VAG 1551 Scan Tool Display - Adaptation, Up To 06.98 Models (2 Of 17)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Input code number 13861.

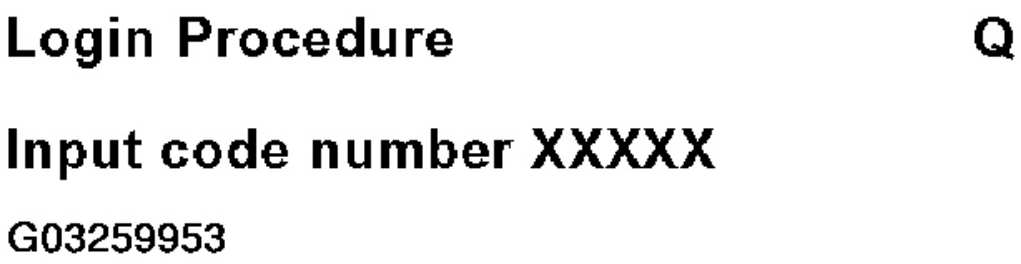


Fig. 54: VAG 1551 Scan Tool Display - Adaptation, Up To 06.98 Models (3 Of 17)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

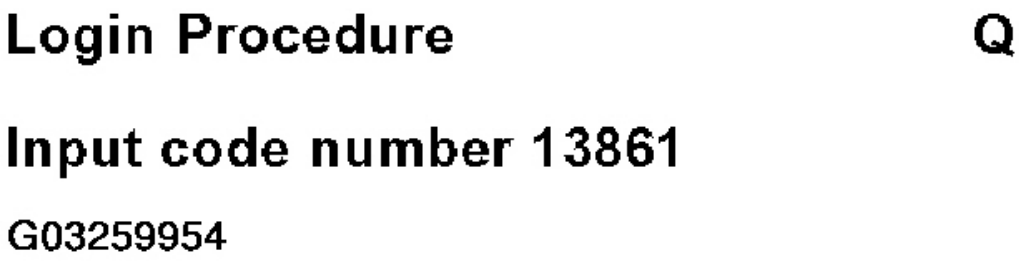


Fig. 55: VAG 1551 Scan Tool Display - Adaptation, Up To 06.98 Models (4 Of 17)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

If a wrong code number is entered 3 times, "FAIL" appears in odometer display.

In this case the ignition must be switched off and on again, and the login procedure repeated using the correct code number.

Electronic radio theft protection must disengage.

See

- Press -Q- button to confirm input.

Indicated on display

- Press buttons -1- and -0- to select function 10, "Adaptation".

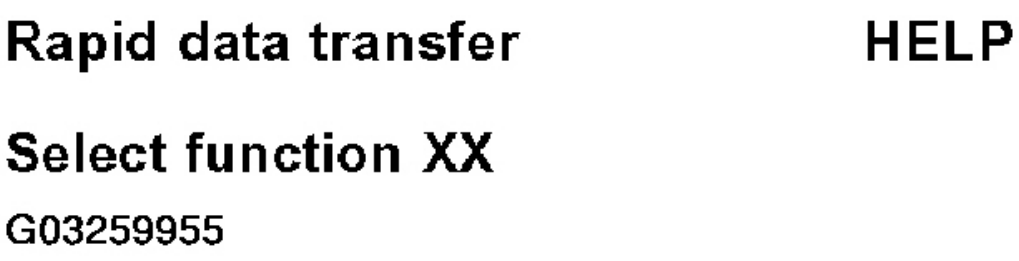


Fig. 56: VAG 1551 Scan Tool Display - Adaptation, Up To 06.98 Models (5 Of 17)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Press -Q- button to confirm input.

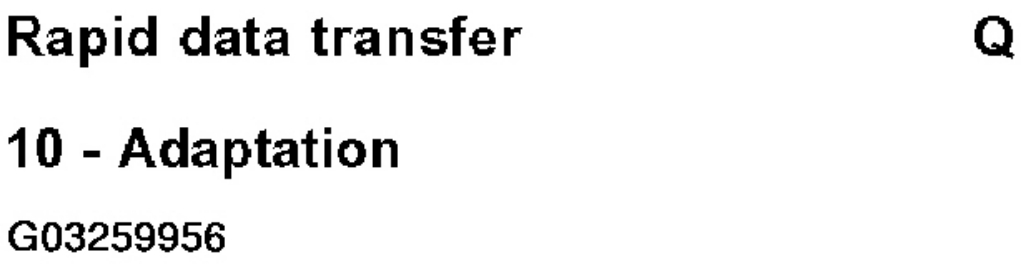


Fig. 57: VAG 1551 Scan Tool Display - Adaptation, Up To 06.98 Models (6 Of 17)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Press buttons -0- and -9- to select channel 09.

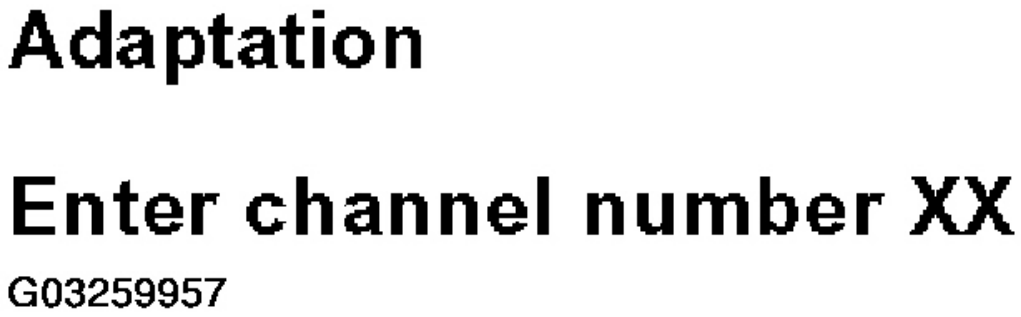


Fig. 58: VAG 1551 Scan Tool Display - Adaptation, Up To 06.99 (7 Of 17)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Press -Q- button to confirm input.

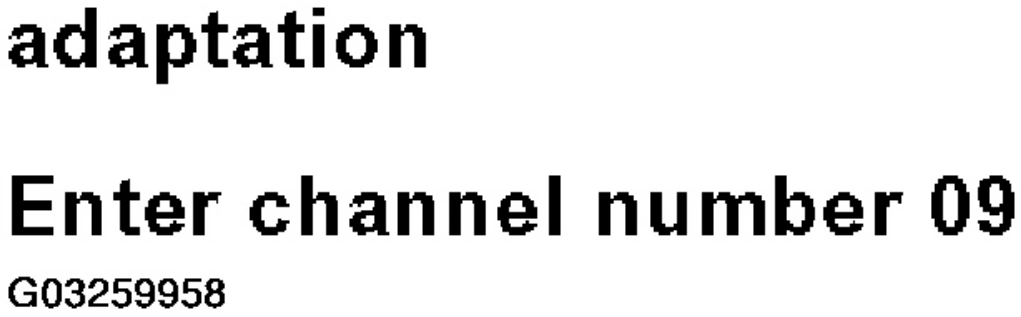


Fig. 59: VAG 1551 Scan Tool Display - Adaptation, Up To 06.98 Models (8 Of 17)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Move forward in program by pressing --> button.

Fig. 60: VAG 1551 Scan Tool Display - Adaptation, Up To 006.98 Models (9 Of 17)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Input adaptation value (odometer reading) using VAG 1551/1552 button pad.

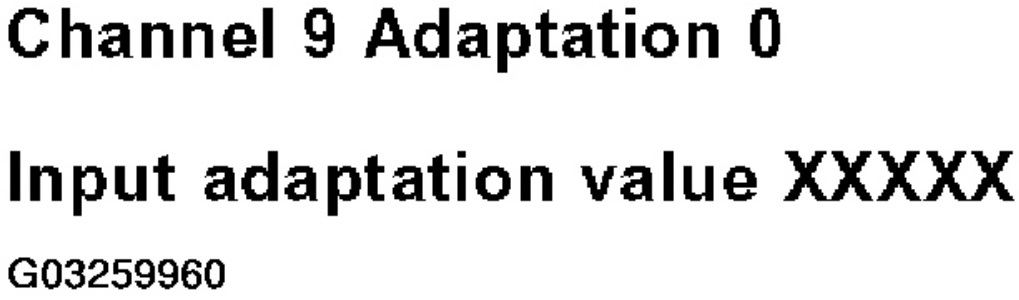


Fig. 61: VAG 1551 Scan Tool Display - Adaptation, Up To 06.98 Models (10 Of 17)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The last position of the odometer reading must be rounded off to the nearest 10.

For US models with Magneti Marelli (M73) instrument clusters, enter odometer reading in miles.

An odometer reading of 89627 miles (US) or 89627 kilometers (Canada) produces an adaptation value of 08963:

EXAMPLE OF ODOMETER ADAPTION VALUE (UP TO 06.98 MODELS)

0	**8**	**9**	**6**	**3**	
X					Hundred thousands: 100000 -655350
	X				Ten thousands:10000 - 90000
		X			Thousands: 1000 - 9000
			X		Hundreds: 100 - 900
				X	Tens: 10-90
					Ones: round up to next ten

- Input adaptation value using VAG 1551/1552 button pad.

Indicated on display

- Press -Q- button to confirm input.

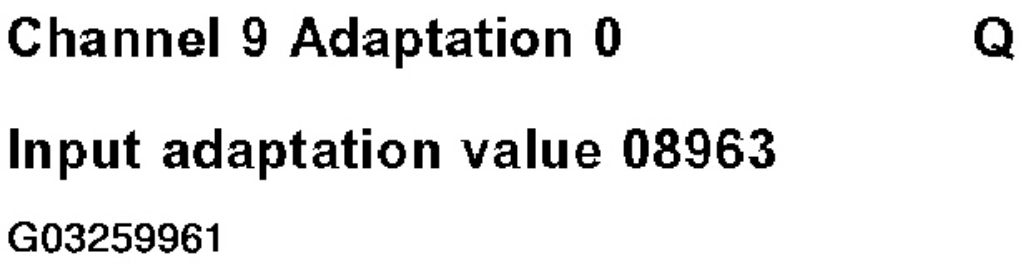


Fig. 62: VAG 1551 Scan Tool Display - Adaptation, Up To 06.98 Models (11 Of 17)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Press -Q- button to confirm input.

Fig. 63: VAG 1551 Scan Tool Display - Adaptation, Up To 06.98 Models (12 Of 17)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

If adaptation value is not correct, e.g. a false entry:

- **Press -C- button to input correct value .**
- **Press -Q- button to confirm input .**

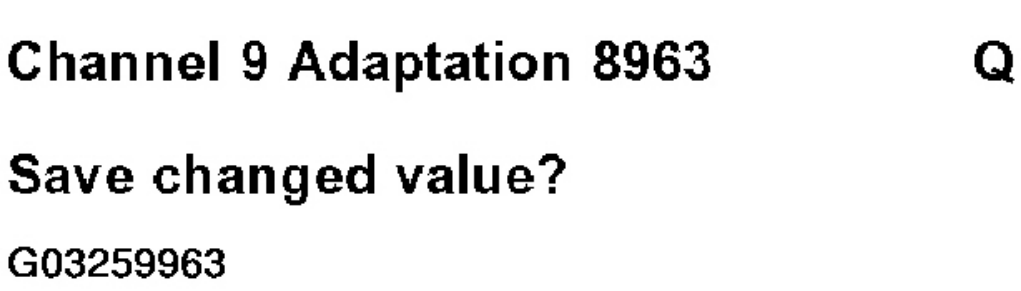


Fig. 64: VAG 1551 Scan Tool Display - Adaptation, Up To 06.98 Models (13 Of 17)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Odometer display shows new distance .

Indicated on display

- **Press --> button to complete adaptation sequence** .

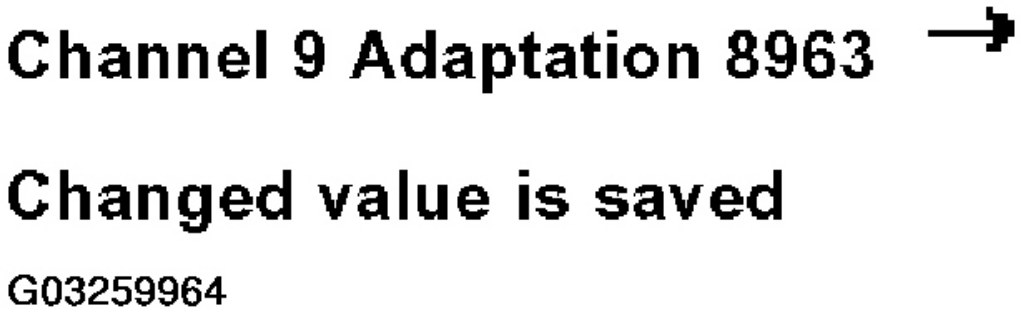


Fig. 65: VAG 1551 Scan Tool Display - Adaptation, Up To 06.98 Models (14 Of 17)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Press buttons -0- and -6- to select function 06 "End Output".

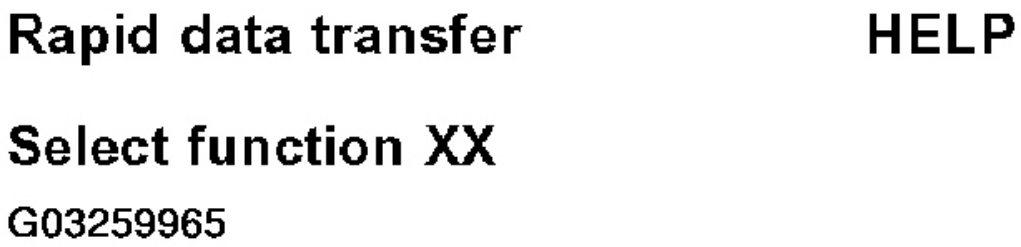


Fig. 66: VAG 1551 Scan Tool Display - Adaptation, Up To 06.98 Models (15 Of 17)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Press -Q- button to confirm input.

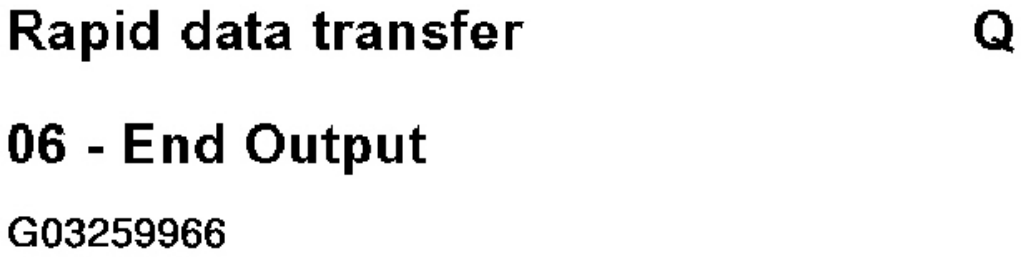


Fig. 67: VAG 1551 Scan Tool Display - Adaptation, Up To 06.98 Models (16 Of 17)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

The scan tool returns to the start of the program sequence.

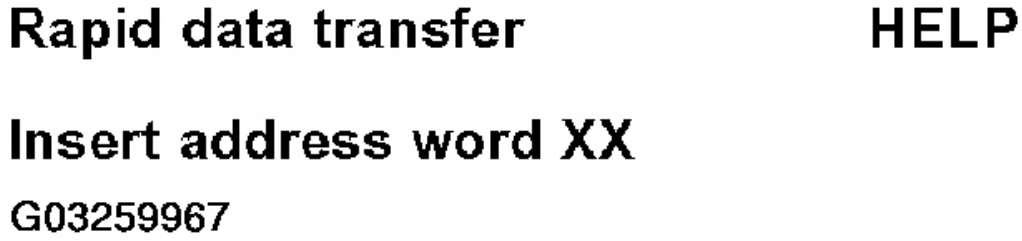


Fig. 68: VAG 1551 Scan Tool Display - Adaptation, Up To 06.98 Models (17 Of 17)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

FUEL GAUGE, CHECKING (ADAPTATION)

If the fuel gauge displays the contents of the fuel tank as being too high or too low, the fuel gauge needle position in the instrument cluster can be corrected (adapted).

- Perform Output Diagnostic Test Mode (DTM) for instrument cluster, See **OUTPUT DIAGNOSTIC TEST MODE (DTM) (FUNCTION 03)** .
- Check function of fuel gauge sender if Output Diagnostic Test Mode (DTM) does not indicate a malfunction:
- Check resistance value of fuel gauge sender in measuring value block. Read measuring value block. See **READ MEASURING VALUE BLOCK (FUNCTION 08)** .

If measuring value block does not display a short circuit or open circuit in the wiring or the fuel gauge sender, continue checks:

Special tools, testers, measuring units and auxiliary items required

- Switch ignition off.
- Drain fuel tank completely using approved fuel cart, then fill with 10 liters (2.64 gal) of fuel (ensure ignition is OFF).

WARNING:

- **Fire hazard. DO NOT smoke or work near heaters or have anything in the area that can ignite fuel.**
- **Drain fuel using an approved fuel cart.**
- **Wear fuel-resistant gloves whenever working with open parts of the fuel system.**

- Connect VAG 1551 Scan Tool (ST), select 1 "Rapid Data Transfer", switch on ignition, input address word 17 "Instrument cluster".

Indicated on display

- Press -Q- button to confirm input.

Fig. 69: VAG 1551 Scan Tool Display - Fuel Gauge Checking, Up To 06.99 (1 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display (example only)

- Press --> button.

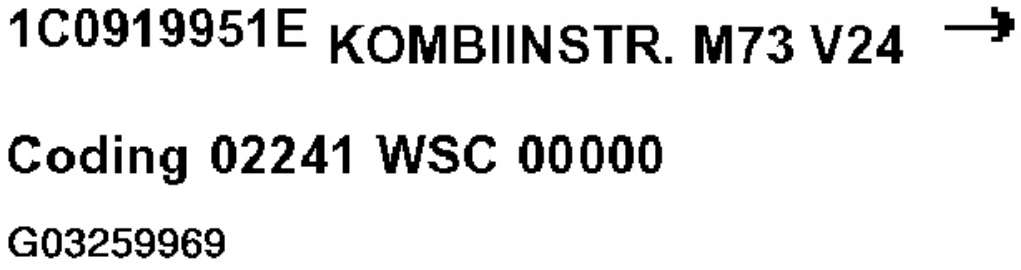


Fig. 70: VAG 1551 Scan Tool Display - Fuel Gauge Checking, Up To 06.99 (2 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display (select function):

- Press buttons -1- and -0- to select function 10 "Adaptation".

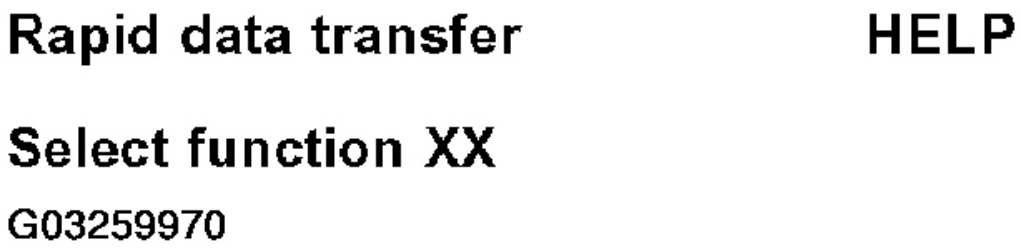


Fig. 71: VAG 1551 Scan Tool Display - Fuel Gauge Checking, Up To 06.99 (3 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Press -Q- button to confirm input.

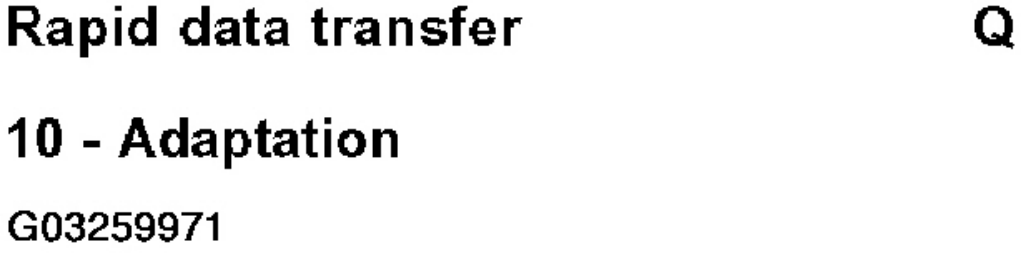


Fig. 72: VAG 1551 Scan Tool Display - Fuel Gauge Checking, Up To 06.99 (4 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Press buttons -3- and -0- to select channel 30.

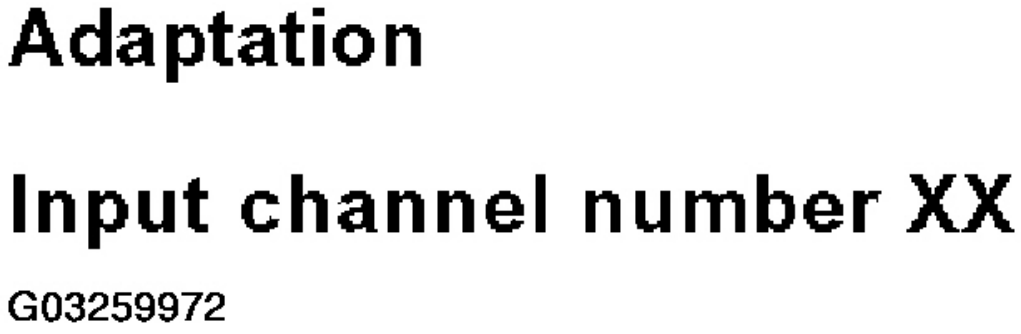


Fig. 73: VAG 1551 Scan Tool Display - Fuel Gauge Checking, Up To 06.99 (5 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Press -Q- button to confirm input.

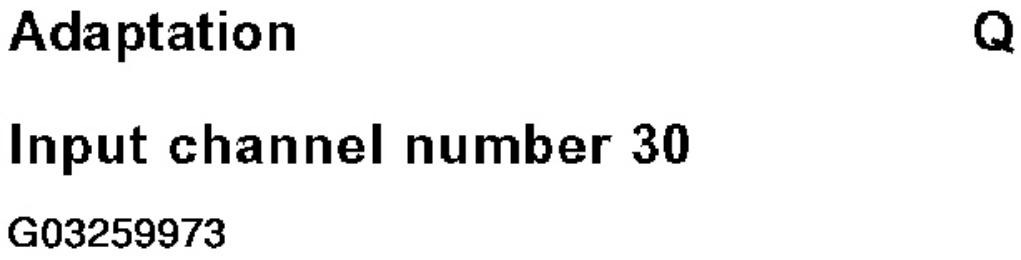


Fig. 74: VAG 1551 Scan Tool Display - Fuel Gauge Checking, Up To 06.99 (6 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Use button -1- to decrease adaptation value down to 120.
- Use button -3- to increase adaptation value up to 136, e.g.130.

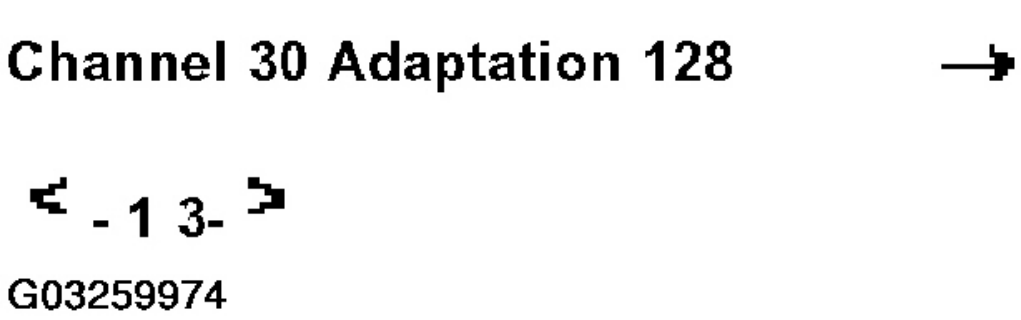


Fig. 75: VAG 1551 Scan Tool Display - Fuel Gauge Checking, Up To 06.99 (7 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

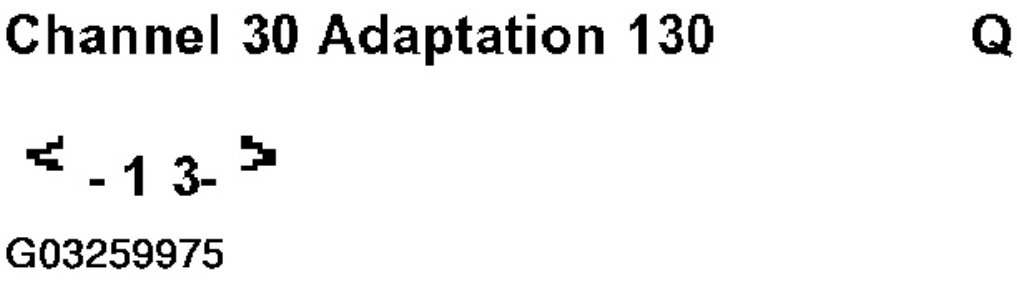


Fig. 76: VAG 1551 Scan Tool Display - Fuel Gauge Checking, Up To 06.99 (8 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Adaptation is correct when the fuel gauge needle is positioned on the right-hand red graduation (reserve), as illustrated.

When needle position is OK:

- Press -Q- button to confirm input.

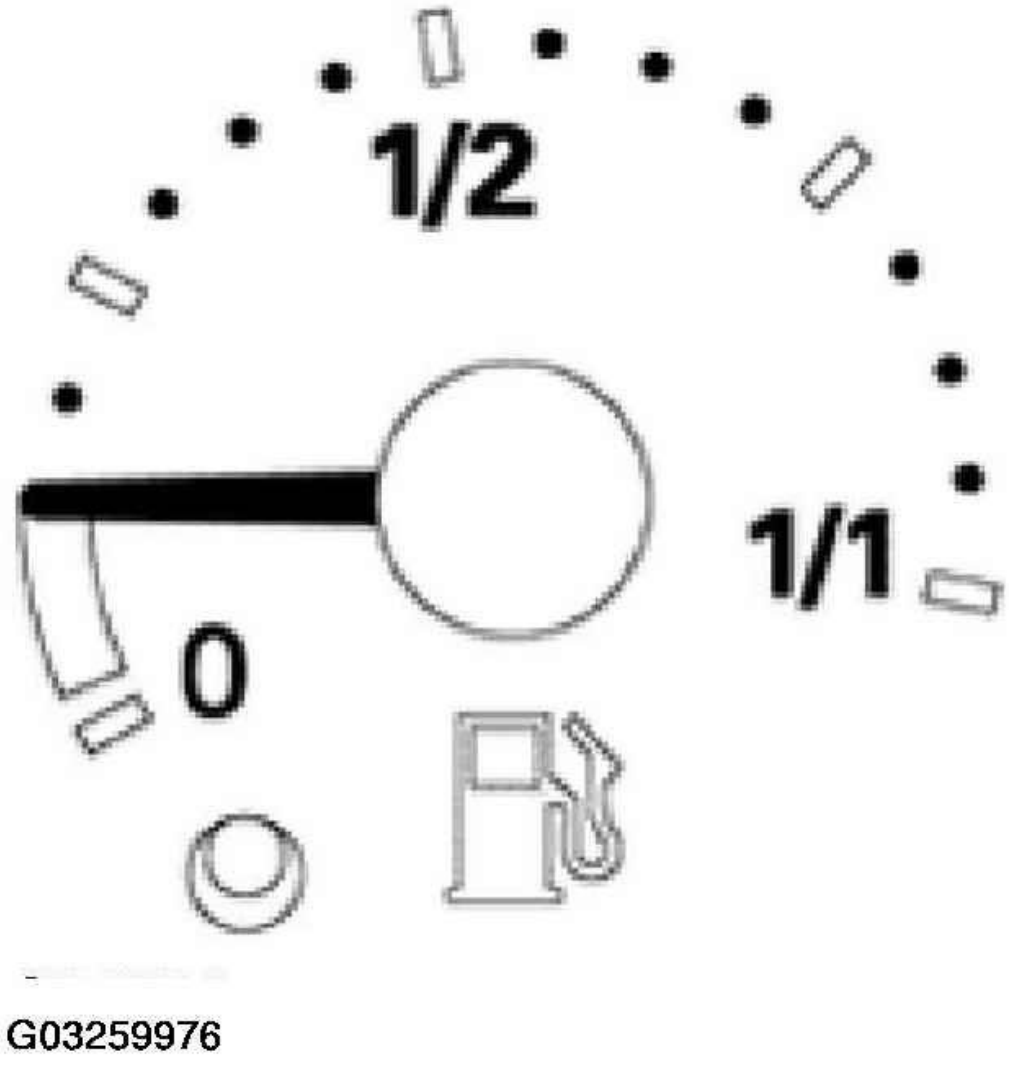


Fig. 77: VAG 1551 Scan Tool Display - Fuel Gauge Checking, Up To 06.99 (9 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display (example only):

- **Press -Q- button to confirm input** .

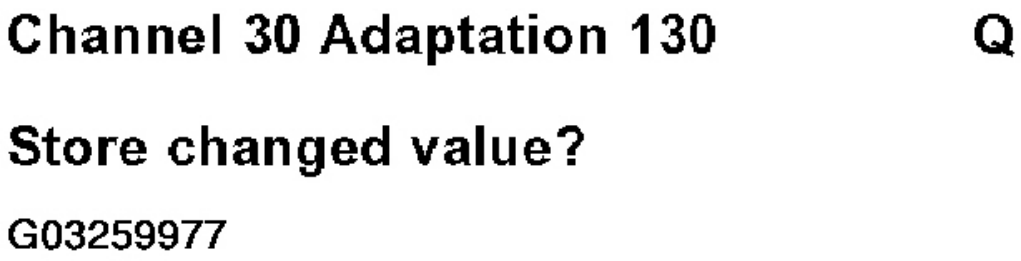


Fig. 78: VAG 1551 Scan Tool Display - Fuel Gauge Checking, Up To 06.99 (10 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Press --> button to complete adaptation sequence.

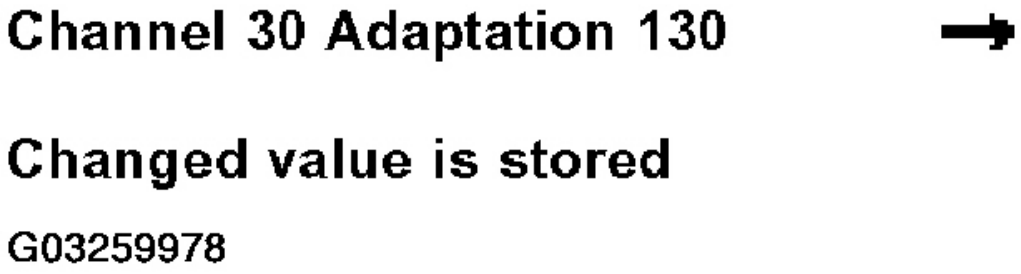


Fig. 79: VAG 1551 Scan Tool Display - Fuel Gauge Checking, Up To 06.99 (11 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

NOTE: If fuel gauge cannot be adapted correctly, replace fuel gauge sender.

- Press buttons -0- and -6- to select function 06 "End Output".

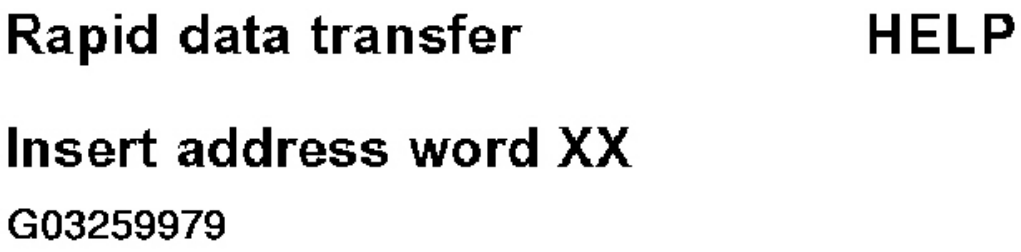


Fig. 80: VAG 1551 Scan Tool Display - Fuel Gauge Checking, Up To 06.99 (12 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Press -Q- button to confirm input.

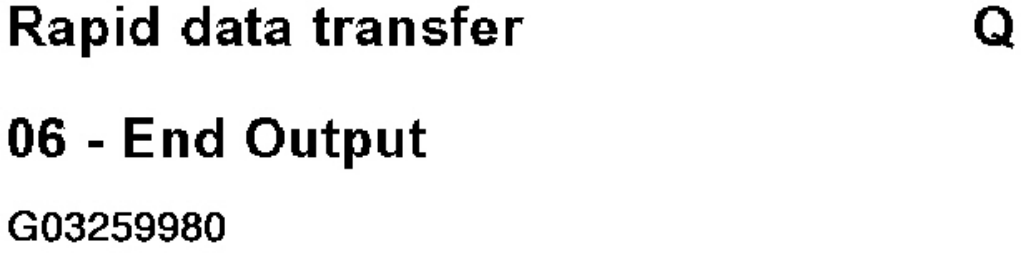


Fig. 81: VAG 1551 Scan Tool Display - Fuel Gauge Checking, Up To 06.99 (13 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

The scan tool returns to the start of the program sequence.

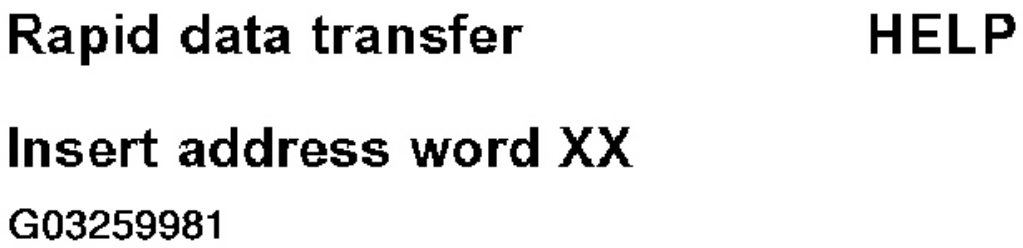


Fig. 82: VAG 1551 Scan Tool Display - Fuel Gauge Checking, Up To 06.99 (14 Of 14)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

INSTRUMENT CLUSTER FROM 06.99 & UP, ON BOARD DIAGNOSTIC (OBD)

GENERAL INFORMATION

The instrument cluster is controlled by an internal microprocessor with On Board Diagnostic (OBD) capability. If malfunctions occur in monitored sensors and components, Diagnostic Trouble Codes (DTC) will be stored in memory together with an indication of malfunction type. A maximum of 4 DTCs can be stored simultaneously.

Sporadic malfunctions (indicated in the readout by "SP") are automatically cancelled if not repeated in the next 50 engine start cycles.

For OBD purposes, the instrument cluster counts one start cycle whenever the ignition is switched on longer than 5 min. and a minimum speed of 30 km/h (18.5 mp/h) is exceeded.

Before performing any troubleshooting or inspection, always begin by checking for DTCs using the OBD program. DTCs stored in memory are retrieved/checked with either the VAG 1551/1552 Scan Tool (ST) or VAS 5051 Vehicle Diagnostic Tester.

Instrument clusters from 06.99 are integrated into the vehicle CAN Data Bus network (may also be known as "CAN-Bus" or "Data-Bus").

The Data Bus On Board Diagnostic Interface -J533- (which is integrated into the instrument cluster) enables data to be exchanged between the vehicle CAN Data-Bus network and the Data Link Connector (DLC) "K-wire".

The Data Bus On Board Diagnostic Interface -J533- has specific On Board Diagnostic (OBD) capabilities.

-J533- must be coded depending on the vehicle equipment when replacing the instrument cluster. See **DATA BUS ON BOARD DIAGNOSTIC INTERFACE -J533- "GATEWAY"** .

NOTE: The following description and illustrations deal specifically with the VAG1551 scan tool. VAG 1552 and VAS 5051 procedures are similar.

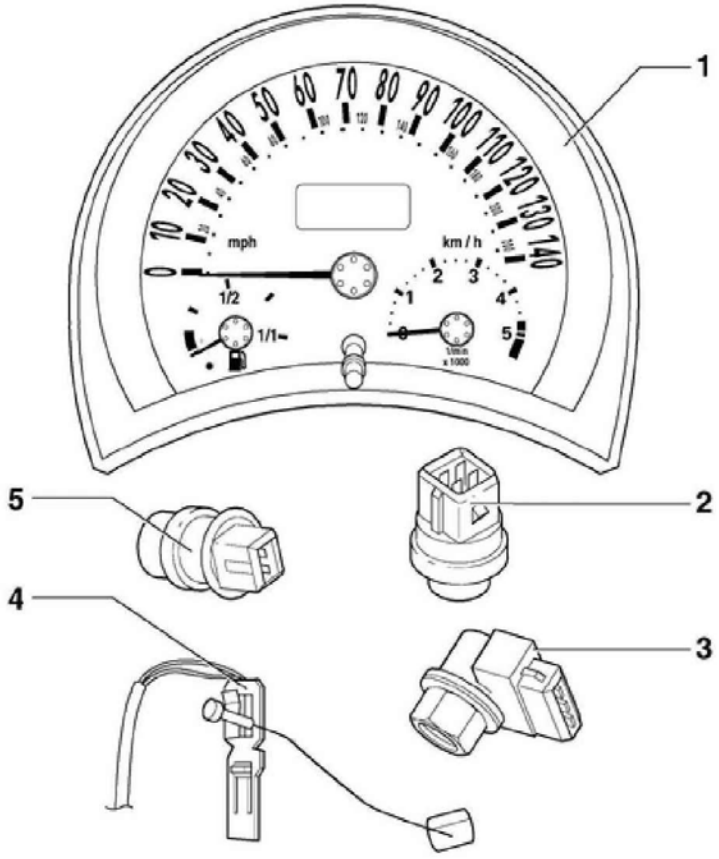
Notes on exchanging instrument cluster

- Do not disassemble instrument cluster.
- When replacing an instrument cluster is necessary, follow normal exchange part procedures.
- Complete report form and return together with instrument cluster.
- Use original packaging from new cluster when returning items.
- Replacement instrument clusters must be coded according to vehicle market version and equipment level variables using VAG 1551 Scan Tool (ST). See **INSTRUMENT CLUSTER UP TO 10.00 MODELS, CODING (FUNCTION 07)** .
- Odometer reading must be adapted to the replacement instrument cluster. See **Adaptation (function 10)** .
- The Data Bus On Board Diagnostic Interface -J533- must be coded according to vehicle market version and equipment level variables, See **Data Bus On Board Diagnostic Interface -J533- "Gateway"** .
- Where applicable, replacement instrument clusters must be adapted to Engine Control Module (ECM) for anti-theft immobilizer function. Use VAS 5051 Vehicle Diagnostic Testing and Information System in operating mode "Guided Fault Finding".

ELECTRICAL & ELECTRONIC COMPONENTS, LOCATIONS

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**
- **Disconnect negative (-) battery terminal.**
- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified. .**



1 - Instrument cluster -K-

2 - Engine coolant temperature (ECT) sensor -G2-

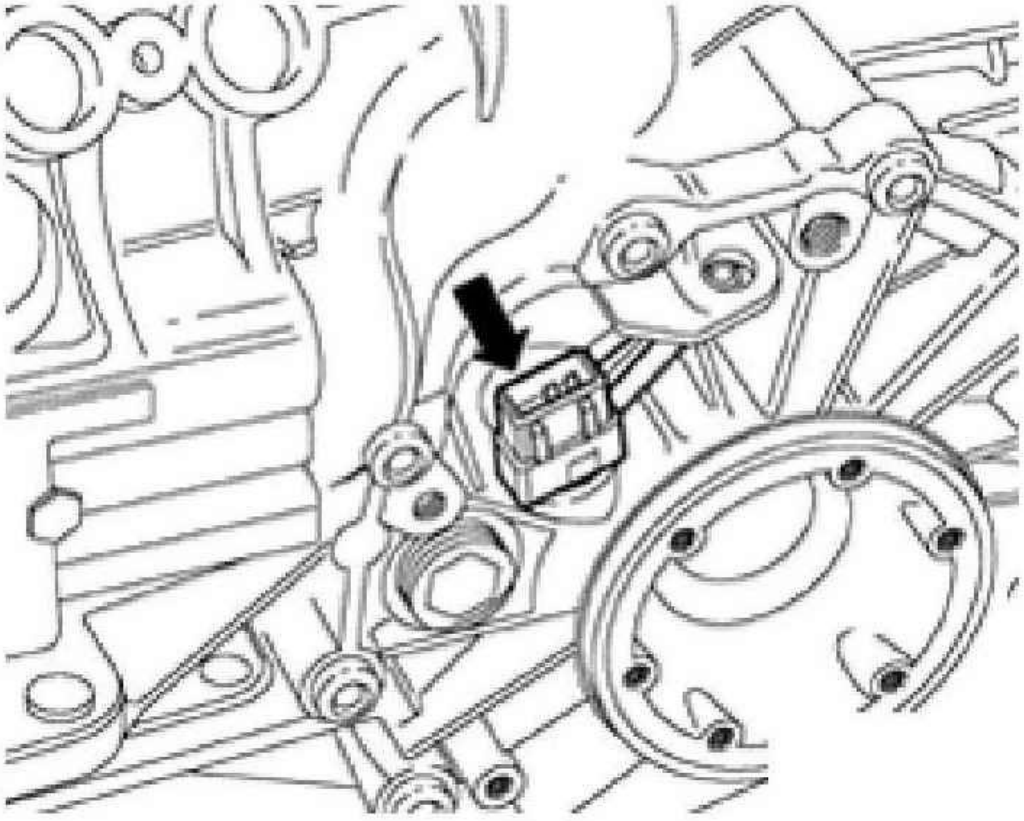
3 - Speedometer vehicle speed sensor (VSS) -G22-

4 - Sender for fuel gauge sender -G-

5 - Outside air temperature sensor -G17-

Fig. 83: Identifying Instrument Cluster Electrical & Electronic Components - From 06.99 & Up
Courtesy of VOLKSWAGEN OF AMERICA, INC.

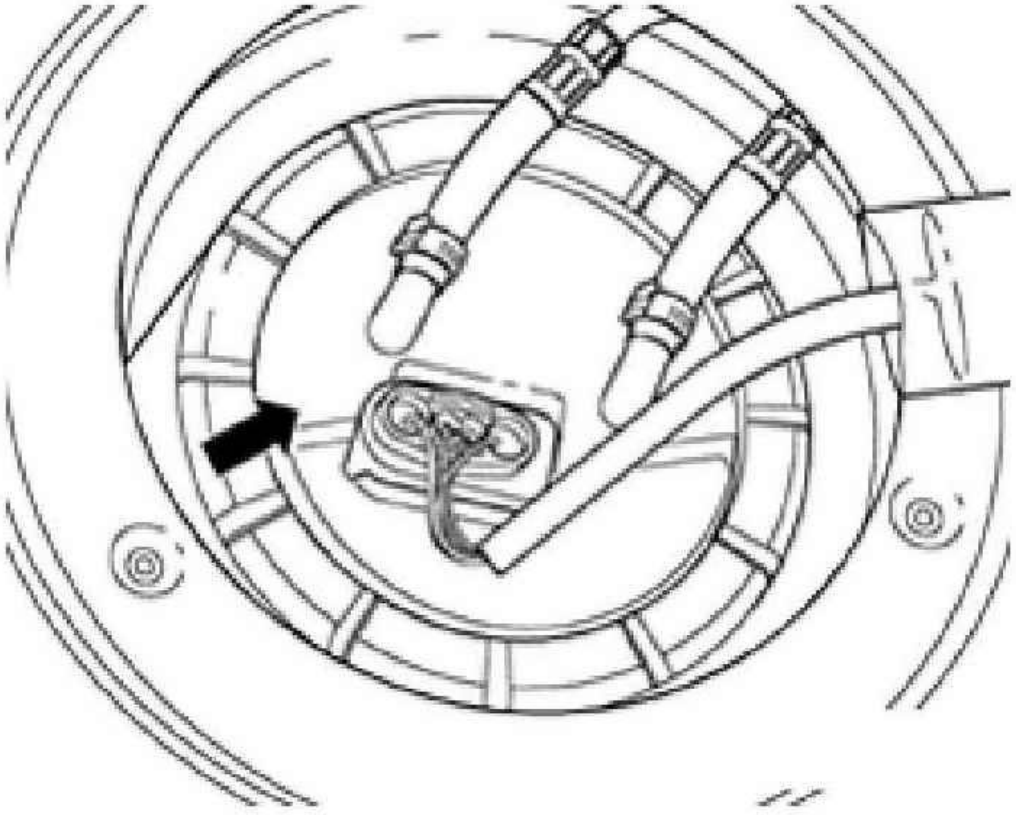
1. **Instrument cluster -K-**
    - Monitored by OBD
2. **Engine coolant temperature (ECT) sensor -G2-**
    - Location depends on type of engine
    - Monitored by OBD
3. **Speedometer vehicle speed sensor (VSS) -G22-**
    - Location, See **Fig. 84**
4. **Sender for fuel gauge sender -G-**
    - Location, See **Fig. 85**
    - Monitored by OBD
5. **Outside air temperature sensor -G17-**
    - Location, See **Fig. 86**
    - Monitored by OBD



G03259983

Fig. 84: Identifying Speedometer Vehicle Speed Sensor (VSS)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The speedometer sensor -arrow- is located in the area of the left-hand drive shaft flange on manual and automatic gearbox vehicles.

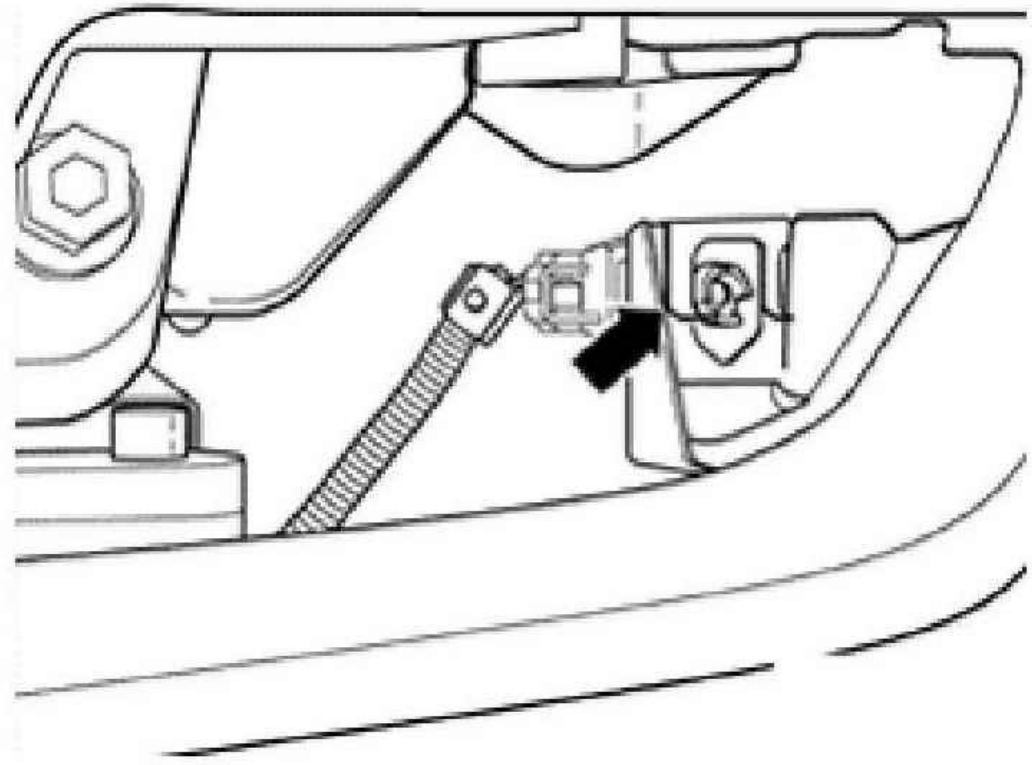


G03259984

Fig. 85: Identifying Sender For Fuel Gauge Sender
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The sender for fuel gauge -G- is located in the fuel tank on the fuel delivery unit -arrow-.

To remove and install fuel delivery unit, see appropriate article in ENGINE/FUEL SYSTEM.



G03259985

Fig. 86: Identifying Outside Air Temperature Sensor
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The outside air temperature sensor -G17- is located on left of front bumper behind the outer air grille.

Unclip air grille to remove sender.

See **FRONT BUMPER, ASSEMBLY OVERVIEW** .

VAG 1551 SCAN TOOL (ST), CONNECTING, SELECTING FUNCTIONS & CHECKING CONTROL MODULE VERSIONS

Special tools, testers, and auxiliary items

- VAG 1551 or VAG 1552 Scan Tool (ST)
- Optional: VAS 5051 Vehicle Diagnostic Tester

Fig. 87: Identifying VAG 1551 Or VAG 1552 Scan Tool (ST)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- VAG 1551/3 or 1551/3B adapter cable

Fig. 88: Identifying VAG 1551/3 Or 1551/3B adapter cable
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Prerequisites:

- All fuses OK according to wiring diagram.
- Battery (B+) voltage at least 9 Volts.

NOTE:

- **VAG 1552 Scan Tool (ST) may be used instead of the VAG 1551 Scan Tool (ST), however a print-out is not possible.**
- **The following procedure and display references pertain only to VAG 1551 Scan Tool (ST).**

Connecting

With ignition switched off, connect VAG 1551 Scan Tool (ST) with adapter cable 1551/3 to the Data Link Connector (DLC) located above ashtray

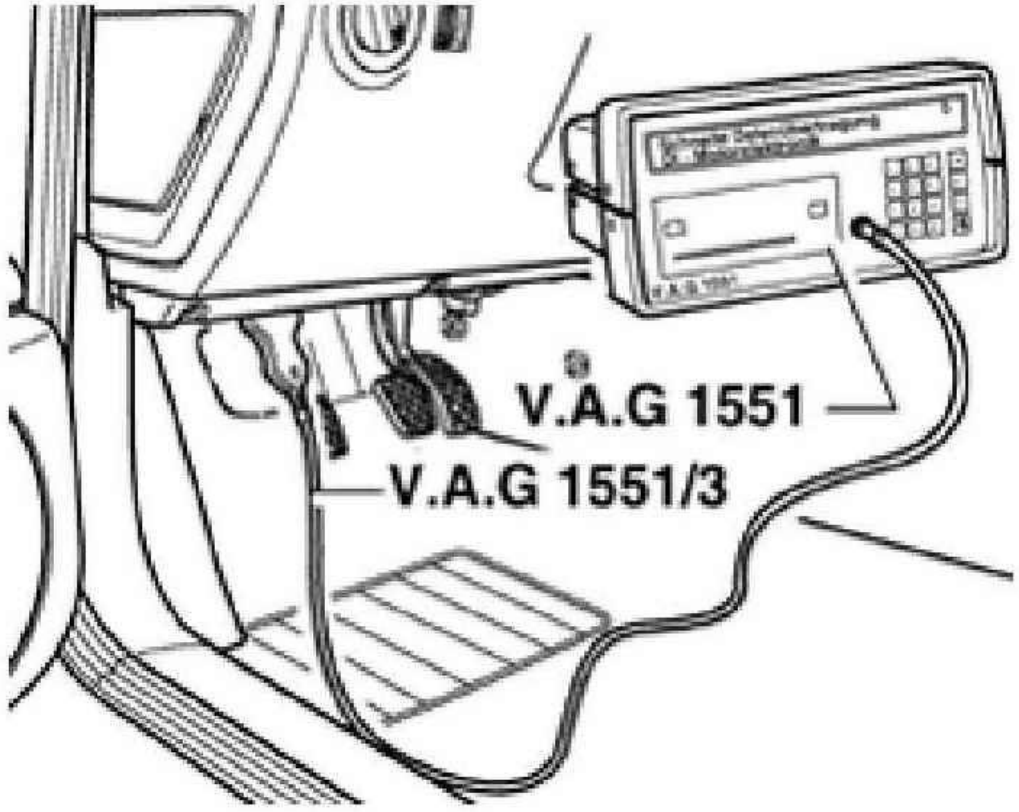


Fig. 89: connecting VAG 1551 Scan Tool To Data Link Connector
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

*Is displayed alternately

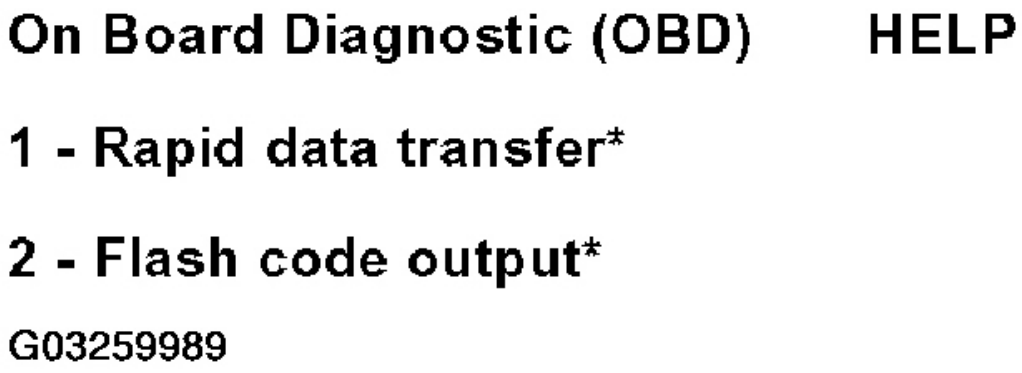


Fig. 90: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (1 Of 11)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE:

- **If display remains blank, check Scan Tool (ST) voltage supply according to wiring diagram.**
- **Additional operating instructions can be called up by pressing HELP button.**
- **The --> button is used to advance through program sequence.**
- **In operating mode 1 "Rapid data transfer," function 00 "Automatic test sequence" can be carried out. The DTC memory of all control modules with OBD capability are checked automatically.**

- Switch on ignition.
- Switch on printer with the Print button (indicator lamp in button lights up).
- Press button 1 for "Rapid data transfer" mode.

Indicated on display:

- Press buttons -1- and -7- to select instrument cluster address word 17.

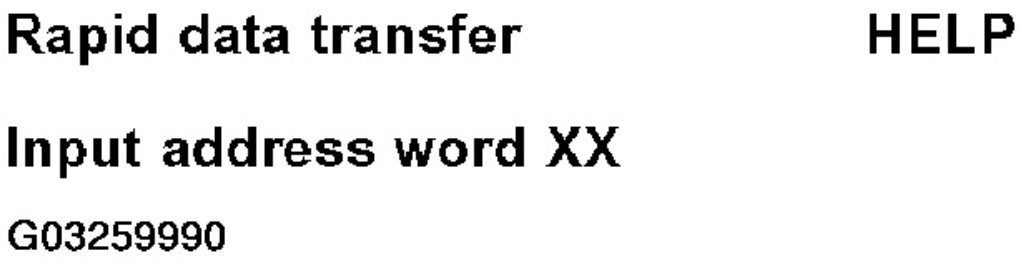


Fig. 91: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (2 Of 11)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm input.

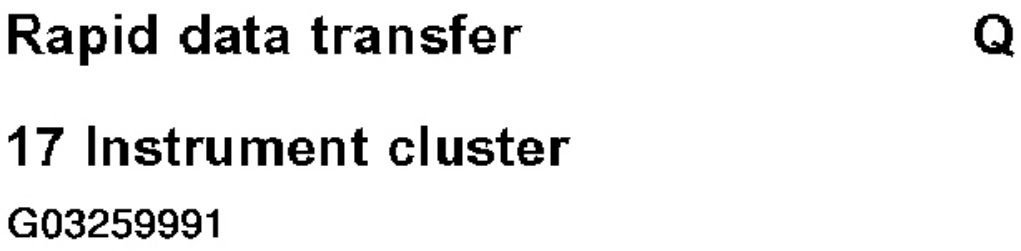


Fig. 92: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (3 Of 11)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

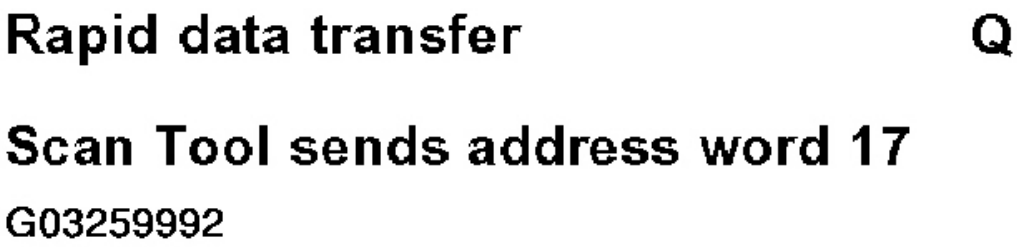


Fig. 93: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (4 Of 11)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Control module version, checking

Indicated on display (example only: instrument cluster with manufacturer code VDO):

Readout, top line

- 1CO 920 90 = Control module part number.
- 1C Combi instrument = Model & system designation
- VDO (VDO), MMO (Motometer) M73 (Magneti Marelli) = Manufacturer's code (On new instrument clusters manufacturer code BOO may appear.)
- V04 = Software version

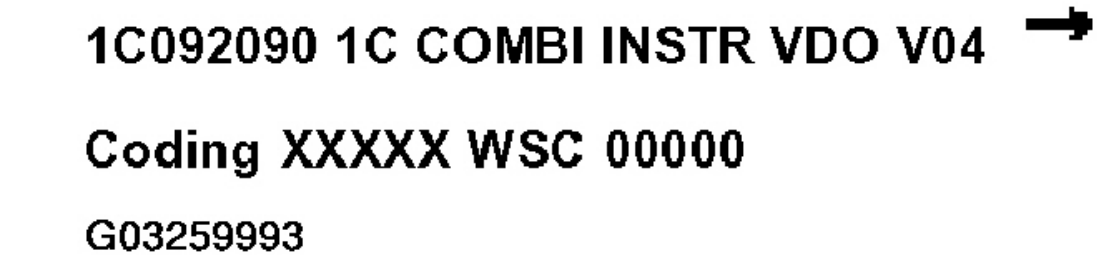


Fig. 94: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (5 Of 11)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Readout, bottom line

- Coding XXXXX = Code number
- WSC 00000 = Workshop code (On control modules not previously coded (e.g.: on new replacements), the workshop code is automatically stored in the control module memory when accessing OBD functions for the first time. An existing workshop code indicates location which last performed coding on the unit.)

CAUTION: Part numbers are for reference only. Always check with your Parts Department for the latest parts information.

NOTE:

- **If this message appears in thay:**
  - **Press --> button.**

  MMO instrument clusters are identified by IMMO-IDENTNO: VWZ6

  VDO instrument clusters are identified by IMMO-IDENTNO: VWZ7

  M73 instrument clusters are identified by IMMO-IDENTNO: VWZ5

Fig. 95: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (6 Of 11)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- **If this message appears in the display:**

  Will be indicated on display:

  - **Press "HELP" button to print out a list of possible malfunction causes.**
  - **After rectifying malfunction, re-enter address word 17 for instrument cluster and press Q button to confirm.**

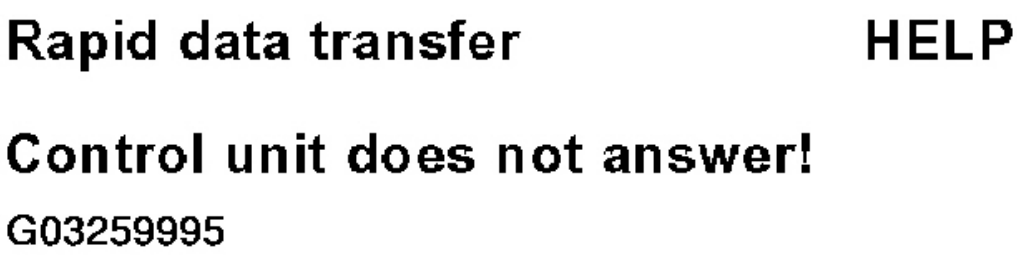


Fig. 96: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (7 Of 11)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press --> button.

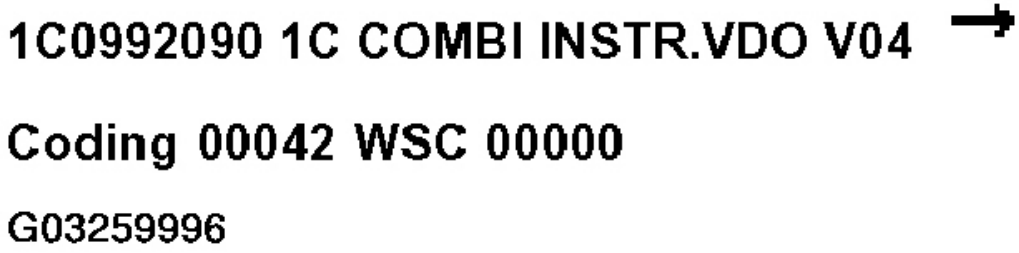


Fig. 97: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (8 Of 11)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press --> button.

Fig. 98: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (9 Of 11)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display (select function):

- List of available functions

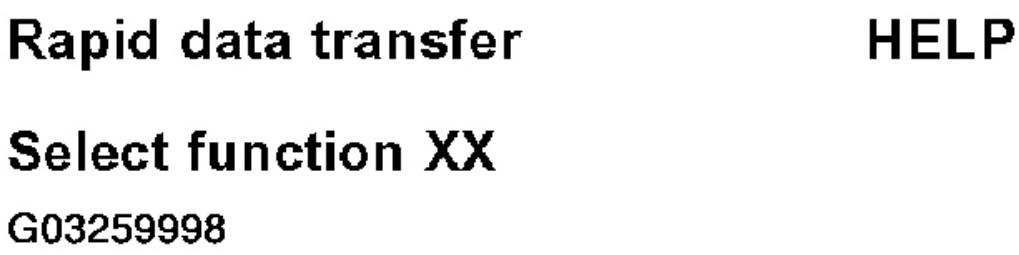


Fig. 99: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (10 Of 11)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

List of available functions

LIST OF AVAILABLE FUNCTIONS (FROM 06.99 & UP)

Function No.	Function Explanation	See
01 -	Check control module version	VAG 1551 Scan Tool (ST), connecting, selecting functions & checking control module versions
02 -	Check Diagnostic Trouble Code (DTC) memory	Diagnostic Trouble Code (DTC) memory, checking (function 02)
03 -	Output Diagnostic Test Mode (DTM)	Output Diagnostic Test Mode (DTM), (function 03)
05 -	Erase DTC memory	See Diagnostic Trouble Code (DTC) memory, erasing

		(function 05)
06 -	End output	**INSTRUMENT CLUSTER 10.00, CODING (FUNCTION 07)**
07 -	Code control module 10.00	**INSTRUMENT CLUSTER 10.00, CODING (FUNCTION 07)**
07 -	Code control module 10.00	**Instrument cluster 10.00, coding (function 07)**
08 -	Read measuring value block	**Read Measuring Value Block (function 08)**
10 -	Adaptation	**Adaptation (function 10)**

NOTE:

- **Press HELP button to print out a complete list of available functions. This list indicates function capability of VAG 1551 Scan Tool (ST) only, and does not necessarily reflect function capability of vehicle systems equipped with OBD. For instrument cluster address word 17, do not attempt to select functions other than those listed above.**
- **After function is completed and forwarded with --> button, VAG 1551 Scan Tool (ST) returns to following start position:**

Indicated on display (select function):

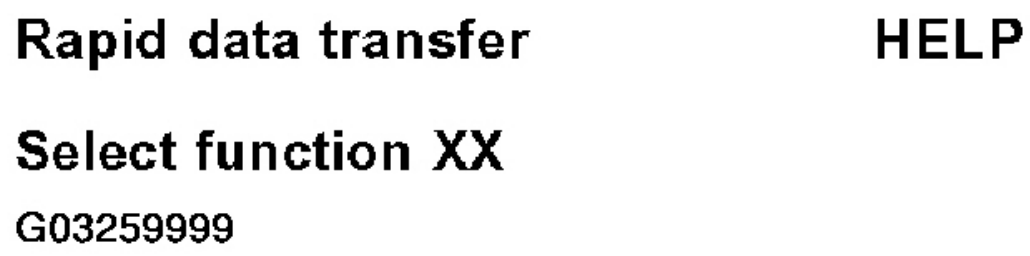


Fig. 100: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (11 Of 11)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

DIAGNOSTIC TROUBLE CODE (DTC) MEMORY, CHECKING (FUNCTION 02)

NOTE: **DTCs stored in memory along with corresponding malfunction descriptions can only be displayed by initiating the On Board Diagnostic program and checking DTC memory (function 02).**

- Connect VAG 1551 Scan Tool (ST), input address word 17, "Instrument cluster", and press --> button until "Select function XX" appears in display, See **VAG 1551 Scan Tool (ST), connecting, selecting functions & checking control module versions** .

- Switch on printer with the Print button (indicator lamp in key lights up).

Indicated on display (select function):

- Press buttons -0- and -2- to select function 02, check Diagnostic Trouble Code (DTC) memory.

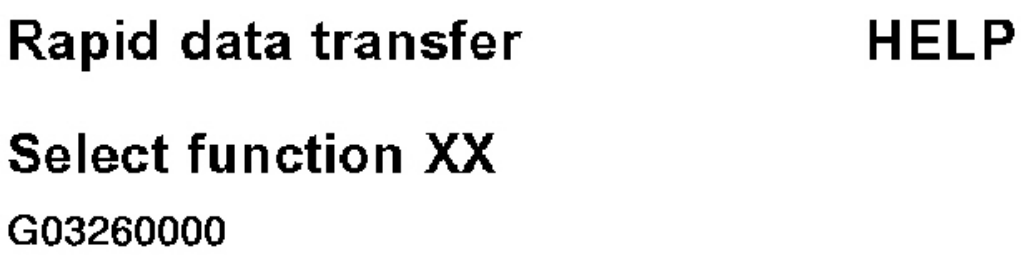


Fig. 101: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory (1 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm input.

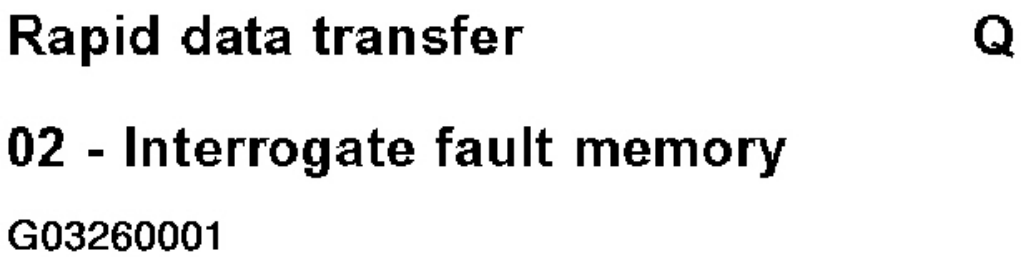


Fig. 102: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory (2 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The number of stored malfunctions appears in the display.

The number of stored DTCs or "No DTC s recognized" appears in the display and are printed out one after

another.

- When the last DTC has been displayed and printed out, rectify malfunctions as described in DTC table, See **Diagnostic Trouble Code (DTC) Table** .

Fig. 103: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory (3 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

If "No DTC recognized" is displayed the program will return to the initial point after pressing --> button.

Fig. 104: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory (4 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display (select function):

If display not indicated as shown

See Scan tool operating instructions.

- End output (function 06). See **End Output (function 06)** .
- Switch off ignition and disconnect Data Link Connector (DLC).

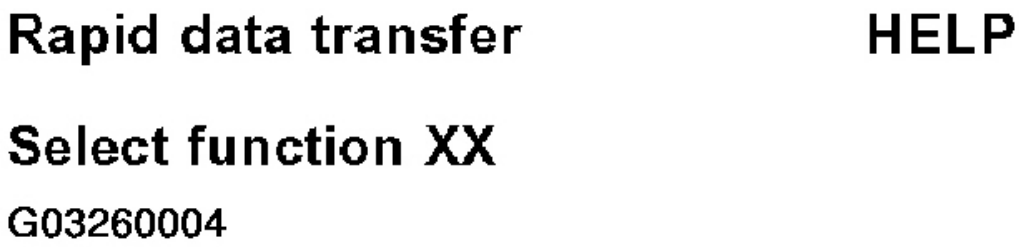


Fig. 105: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory (5 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

DIAGNOSTIC TROUBLE CODE (DTC) TABLE

NOTE:

- **The following table lists all malfunctions, with the corresponding 5 digit code numbers, that can be recognized by control module with indicator unit in instrument cluster insert -J285- and printed out by the VAG 1551 Scan Tool (ST).**
- **If malfunctions do not occur regularly, these are displayed as occurring sporadically ("SP").**
- **DTC codes appear only on print-out.**
- **Before replacing components, check the wiring and connections to these components as well as ground connections, according to wiring diagram.**
- **When repair has been carried out, Diagnostic Trouble Code (DTC) memory must always be erased and checked again with VAG 1551 Scan Tool (ST).**
- **If there is a specific complaint and no malfunctions are recognized after checking Diagnostic Trouble Code (DTC) memory, carry out function 03 Output Diagnostic Test Mode (DTM), (function 03) , or function 08 Read Measuring Value Block (function 08) .**

DIAGNOSTIC TROUBLE CODES (DTC)TABLE (FROM 06.99 & UP)

VAG 1551 print out	Possible cause	Possible effects	Corrective Action
00771(1) Sender for fuel gauge -G- • Open/short circuit to B+ • Short circuit to ground	• Open or short circuit between -G- and instrument cluster • G- malfunctioning	Fuel gauge display shows value 0 ("empty")	• Read measuring value block, function 08. See **Read Measuring Value Block (function 08)** . • Check for open or short circuit using wiring diagram

			• Replace sender for fuel gauge -G-
00779[2] Outside Air Temperature sensor -G17- • Open/Short circuit to B+ • Short circuit to ground	• Open or short circuit in wiring. • Outside air temperature sensor -G17- malfunctioning	Display for outside temperature display shows three dashes (-)	• Check for open or short circuit using wiring diagram • Replace outside air temperature sensor -G17-
01039[3] Engine Coolant Temperature (ECT) sensor -G2- • Open/Short circuit to B+ • Short circuit to ground	• Wiring open circuit or short between -G2- and instrument cluster • ECT sensor -G2- malfunctioning	Coolant temperature gauge needle on left stop	• Read measuring value block, function OR, see **Read Measuring Value Block (function 08)** . • Check for open or short circuit in wiring using wiring diagram • Replace ECT sensor -G2-
01044 Control module incorrectly coded	• A control module connected to vehicle CAN Data Bus network is incorrectly coded • A control module connected to vehicle CAN Data Bus network is malfunctioning	Driveability problems (shift pressure, load shift impact) Dynamic driving regulation inoperative	• Check DTC memory of all control modules connected to vehicle CAN Data Bus, troubleshoot and repair as necessary. • Confirm correct coding of all control modules coding connected to vehicle CAN Data Bus. • Replace control module.
01312 Data Bus Drive • Faulty	• Fault in CAN Data Bus wiring • Data Bus Drive in Bus-Off condition	Driveability problems (shift pressure, load shift impact) no driving dynamic regulation	• Read measuring value block, function OR, see **Read Measuring Value Block (function 08)** . • Check DTC memory of all control modules connected to vehicle CAN Data Bus, troubleshoot and repair as necessary

			• Confirm correct coding of all control modules coding connected to vehicle CAN Data Bus. • Check CAN Data Bus wiring using wiring diagram
01314 Engine Control Module (ECM) -J220- • No communication	No data transfer from Engine Control Module (ECM) over CAN Data Bus network.	Driveability problems (shift pressure, load shift impact) Dynamic driving regulation inoperative	• Check DTC memory of ECM, troubleshoot and repair as necessary. • Check CAN Data Bus wiring to ECM using wiring diagram.
01315 Transmission Control Module (TCM)-J217- • No communication	No data transfer from Transmission Control Module (TCM) over CAN Data Bus network.	Driveability problems (shift pressure, load shift impact) Dynamic driving regulation inoperative	• Check DTC memory of TCM, troubleshoot and repair as necessary. • Check CAN Data Bus to TCM using wiring diagram.
01316 ABS Control Module (w/EDL) -J204- • No communication	No data transfer from ABS control module over CAN Data Bus network.	Driveability problems (shift pressure, load shift impact) Dynamic driving regulation inoperative	• Check DTC memory of ABS control module, troubleshoot and repair as necessary • Check CAN Data Bus network to ABS control module using wiring diagram
01317 Control module with indicator unit in instrument cluster insert -J285- • No communication	• Malfunction in CAN Data Bus wiring • -J285- malfunctioning	Driveability problems (shift pressure, load shift impact) Dynamic driving regulation inoperative	• Read measuring value block of Data Bus On Board Diagnostic Interface -J533- in instrument cluster. See **Read Measuring Value Block (function 08)** . • Check DTC memory of all control modules which are connected to vehicle CAN Data Bus, troubleshoot and repair as necessary

			• Check CAN Data Bus wiring using wiring diagram
65535 Control Module • Malfunctioning		Instrument cluster malfunctioning	• Replace instrument cluster.
Other DTCs	If other DTC's are displayed that are not shown in this DTC table, perform On Board Diagnostic (OBD) of anti-theft immobilizer system using VAS 5051 Vehicle Diagnostic Testing and Information System.		
(1) DTC will load into memory only after malfunction is present continuously for a minimum of 20 seconds. During first 20 seconds "Sensor cannot be tested at this time" is displayed. (2) For vehicles with a multi-function indicator. (3) DTC display "Open circuit/short to B+" is loaded into memory when malfunction is present on engine having run for a minimum of 30 minutes.			

OUTPUT DIAGNOSTIC TEST MODE (DTM), (FUNCTION 03)

The Output Diagnostic Test Mode is part of the electrical check. The following components can be checked by the Output Diagnostic Test Mode (DTM):

- Speedometer
- Tachometer
- Coolant temperature gauge
- Fuel gauge
- Malfunction lamps
- Seat belt warning lamp (when activated using code)
- Buzzer/Gong
- Displays (odometer, multi-function indicator or digital clock, selector lever position display for automatic gearboxes)
    - If malfunction is determined when performing Output DTM, exchange instrument cluster.
    - If no malfunction is determined when performing Output DTM, check wiring and connections to instrument cluster using wiring diagram.

Output Diagnostic Test Mode (DTM), initiating

NOTE:

- **Output Diagnostic Test Mode (DTM) cannot be initiated or will be interrupted if engine is running or vehicle is moving,**
- **Use -C- button to exit test sequence at any time.**

- Connect VAG 1551 Scan Tool (ST), input address word 17 "Instrument cluster".

After control module identification and immobilizer identification number is displayed:

- Press --> button.

Indicated on display (select function):

- Press buttons -0- and -3- to select function 03 "Output Diagnostic Test Mode (DTM)".

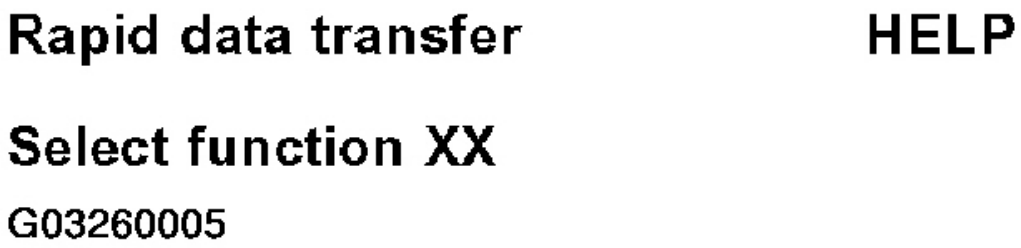


Fig. 106: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode Initiating (1 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

- Press -Q- button to confirm input.

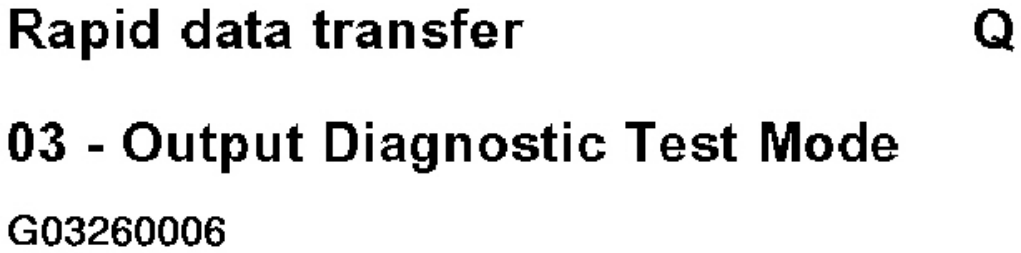


Fig. 107: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode Initiating (2 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

No indication on all displays and all warning lights to be checked are unlit.

Indicated on display

Fig. 108: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode Initiating (3 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

After pressing -Q- button, the following instrument functional checks are carried out.

- Tachometer needle moves over complete display range
- Speedometer needle moves over complete display range
- Coolant temperature needle moves over complete display range
- Fuel gauge needle moves over complete display range

NOTE:

- **On VDO instrument clusters, the instruments are activated simultaneously**
- **On MMO instrument clusters, the instruments are activated sequentially**

After all instrument display range checks, the following constant values are displayed:

Coolant temperature gauge: 90°C

Tachometer: 3000 rpm

Speedometer:100km/h (65 mph)

Fuel gauge:1/2

- Press --> button.

Indicated on display:

The warning lamps are activated and light continuously (includes all warning lamps for vehicle equipment having output DTM capability coded into the instrument cluster

- Press --> button.

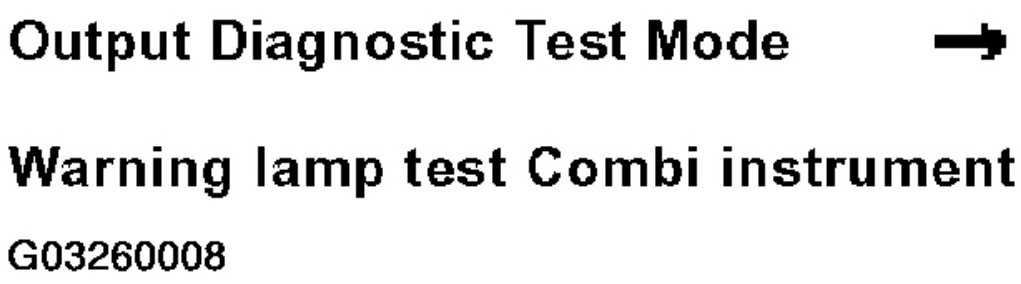


Fig. 109: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode Initiating (4 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

Seat belt warning lamp -K19- lights (when activated by code).

- Press --> button.

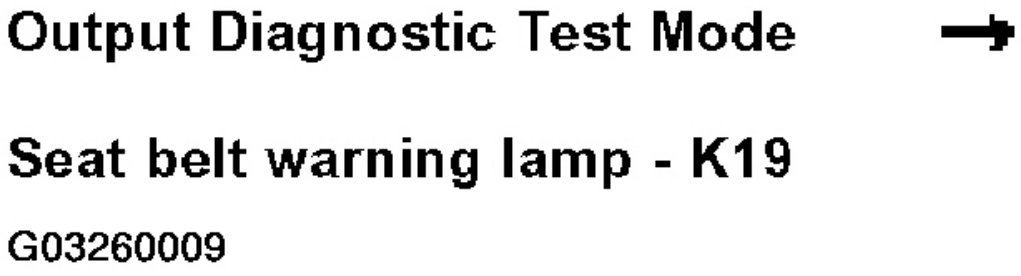


Fig. 110: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode Initiating (5 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

The buzzer/gong is activated and a warning tone is emitted at intervals.

- Press --> button.

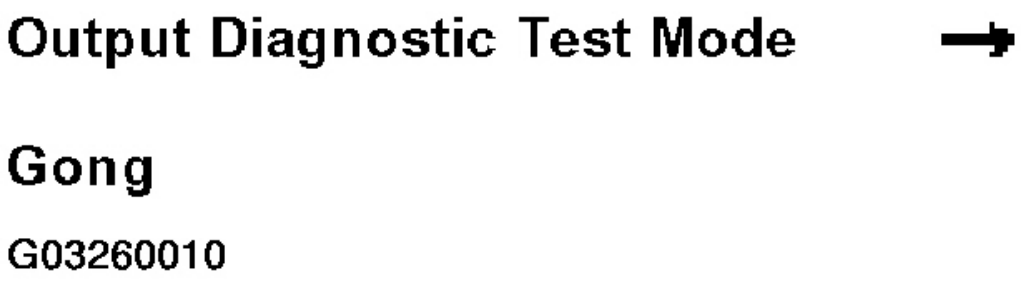


Fig. 111: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode Initiating (6 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

All liquid crystal segments in the speedometer display and tachometer are activated and appear on the display.

- Press --> button.

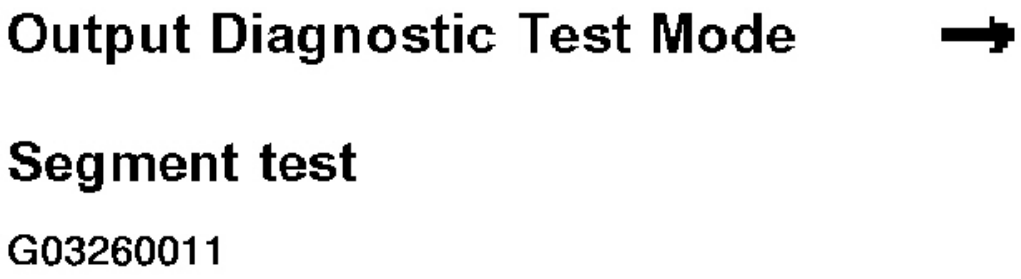


Fig. 112: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode Initiating (7 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

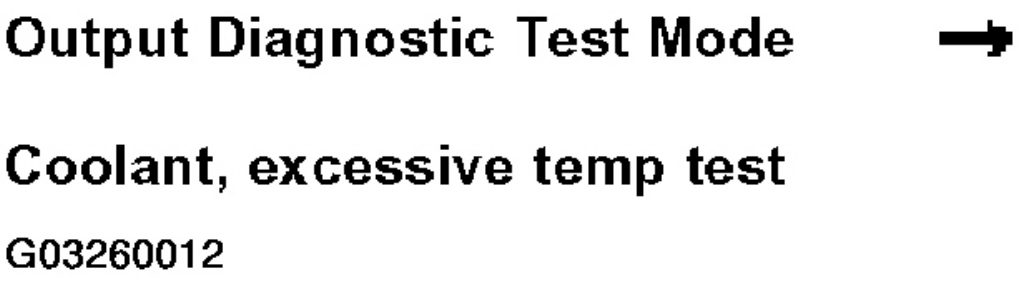


Fig. 113: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode Initiating (8 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

VDO Instrument cluster:

No display in instrument cluster!

High coolant temperature cut-out for the A/C clutch is activated approx. 5 seconds later.

MMO Instrument cluster:

Coolant temperature warning lamp lights and warning tone sounds.

High coolant temperature cut-out for the A/C clutch is activated approx. 5 seconds later.

- Press --> button.

Indicated on display for instrument clusters with manufacturer code MMO:

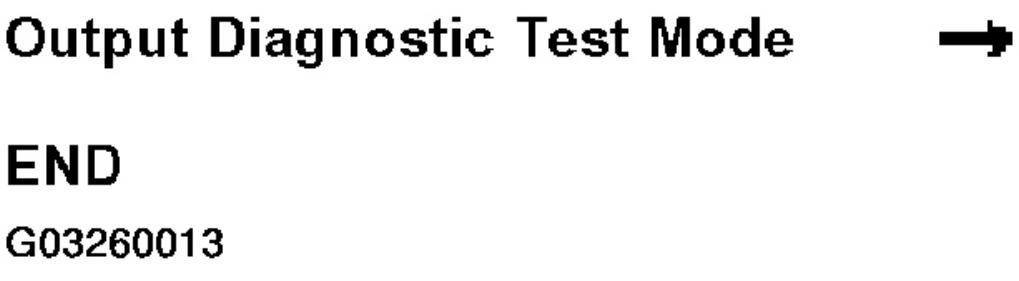


Fig. 114: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode Initiating (9 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display for instrument clusters with manufacturer code VDO:

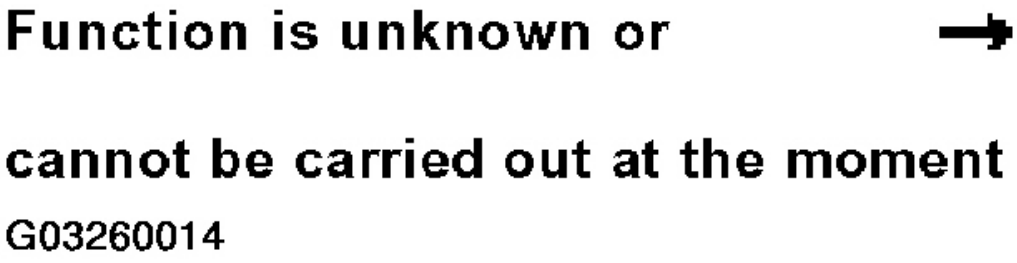


Fig. 115: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode Initiating (10 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

End Output Diagnostic Test Mode for VDO instrument clusters by pressing --> button.

All actual values are displayed again.

Indicated on display (select function):

- Press buttons -0- and -6- to select function 06 "End output".

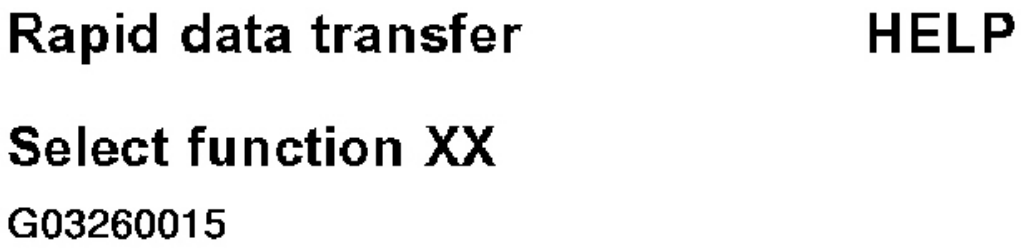


Fig. 116: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode Initiating (11 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm entry.

Fig. 117: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode Initiating (12 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

Tester is again in basic function.

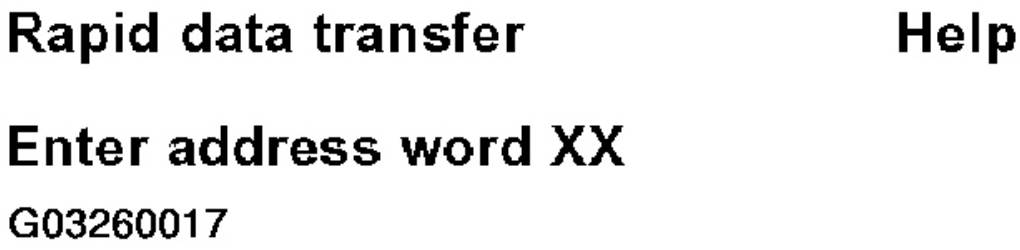


Fig. 118: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode Initiating (13 Of 13)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

DIAGNOSTIC TROUBLE CODE (DTC) MEMORY, ERASING (FUNCTION 05)

NOTE: Erasing DTC memory (function 05) is only possible after checking DTC memory (function 02). If DTC memory cannot be erased, check DTC memory again and rectify indicated malfunctions.

Prerequisites

- Check DTC memory. See **Diagnostic Trouble Code (DTC) memory, checking (function 02)** .
- All malfunctions repaired.

After checking DTC memory:

Indicated on display (select function):

- Press buttons -0- and -5- to select function 05, "Erase DTC memory."

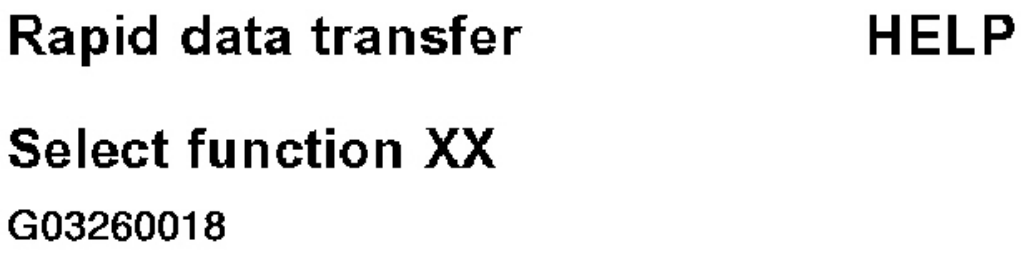


Fig. 119: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Erasing, From 06.99 & Up (1 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm input.

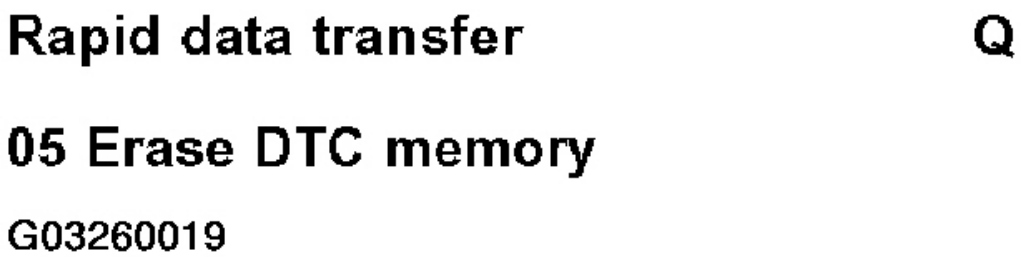


Fig. 120: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Erasing, From 06.99 & Up (2 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display: (DTC memory is erased)

- Press --> button.

Fig. 121: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Erasing, From 06.99 & Up (3 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display (select function):

- End output (function 06). See **End Output (function 06)** .

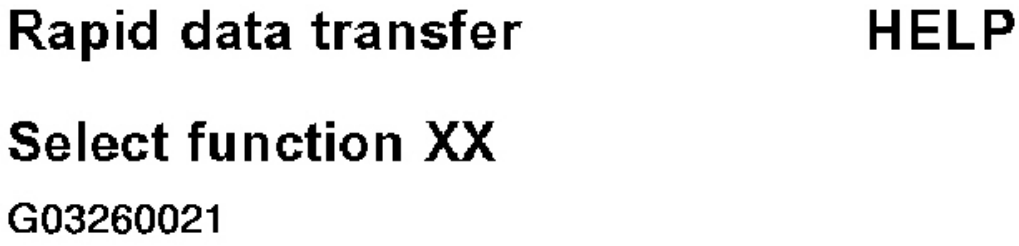


Fig. 122: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Erasing, From 06.99 & Up (4 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE:

- **If this appears in the display, test sequence is faulty.**

Fig. 123: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Erasing, From 06.99 & Up (5 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- **If this appears in the display, test sequence is faulty.**

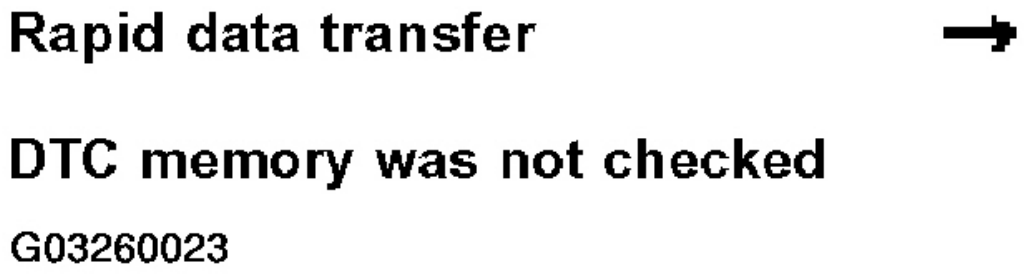


Fig. 124: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Erasing, From 06.99 & Up (6 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Adhere exactly to test sequence: First check DTC memory, repair malfunctions if necessary, then erase.

END OUTPUT (FUNCTION 06)

- Press buttons -0- and -6- to select function "End output."

Indicated on display:

- Press -Q- button to confirm input.

Fig. 125: VAG 1551 Scan Tool Display - End Output, From 06.99 & Up (1 Of 2)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Switch off ignition.
- Disconnect VAG 1551 Scan Tool (ST) from Data Link Connector (DLC).

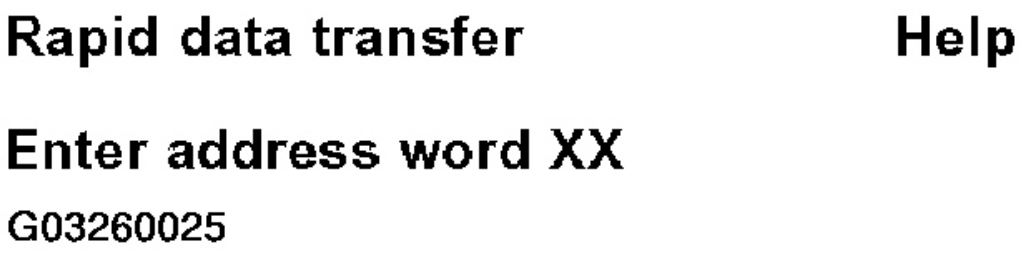


Fig. 126: VAG 1551 Scan Tool Display - End Output, From 06.99 & Up (2 Of 2)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

INSTRUMENT CLUSTER UP TO 10.00 MODELS, CODING (FUNCTION 07)

Use this function to code the control module with indicator unit in instrument cluster -J285- with the following information:

- Available equipment

- Market version
- Code number for service intervals
- Code number for distance impulse number ("K" number)

Coding

- Connect VAG 1551 scan tool (ST), select operating mode 1 "Rapid data transfer", switch on ignition and input address word 17 "Instrument cluster".

After control module identification and immobilizer identification number are displayed:

- Press --> button.

Indicated on display:

- Press buttons -0- and -7- to select function 07 "Code control module".

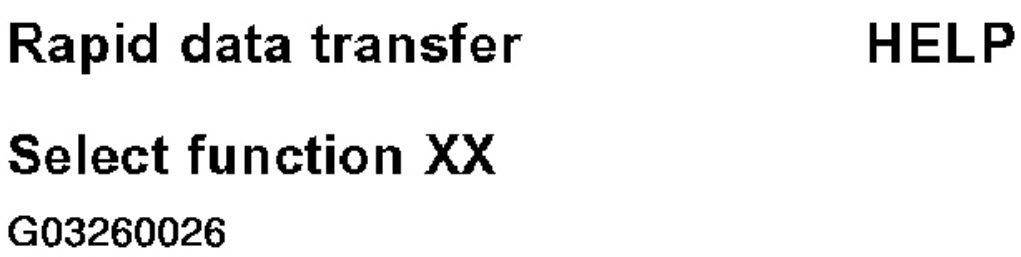


Fig. 127: VAG 1551 Scan Tool Display - Instrument Cluster Coding, Up To 10.00 Models (1 Of 8)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm input.

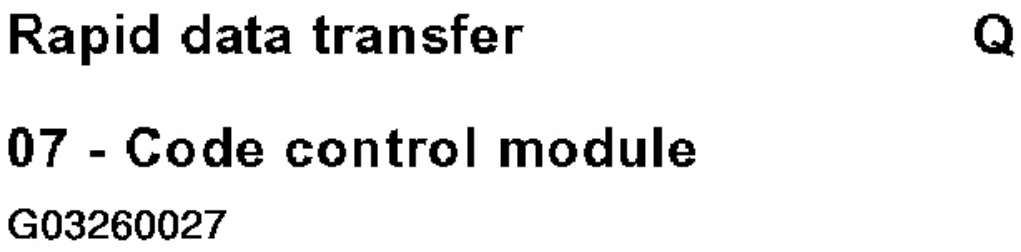


Fig. 128: VAG 1551 Scan Tool Display - Instrument Cluster Coding, Up To 10.00 Models (2 Of 8)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Confirm applicable available equipment, model and service interval particulars, determine and enter code number from code table. See **INSTRUMENT CLUSTER CODE TABLE (UP TO 10.00 MODELS)** .

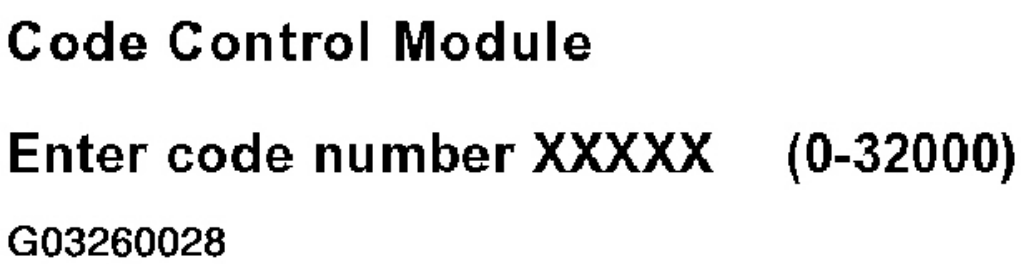


Fig. 129: VAG 1551 Scan Tool Display - Instrument Cluster Coding, Up To 10.00 Models (3 Of 8)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Coding example:

03 Code number for vehicle options

2 Code number for country version

0 Code number for service intervals

2 Code number for distance impulse number (K-number)

INSTRUMENT CLUSTER CODE

Code	Place In Code	Designation
	1st & 2nd Digits	**Available equipment(1)**
00	1st & 2nd Digits	No optional equipment active
01	1st & 2nd Digits	Brake pad wear indicator active
02	1st & 2nd Digits	Seat belt warning active
04	1st & 2nd Digits	Rear spoiler
	3rd Digit	**Market version**
2	3rd Digit	USA (US)
3	3rd Digit	Canada (CDN)
	4th Digit	**Code number for service intervals**
	0	Fixed USA/CDN service intervals - without oil level thermal sensor -G266- installed
	2	Fixed USA/CDN service intervals - with oil level thermal sensor -G266- installed
	5th Digit	**Code number for trip impulse number (K-number)** 3528

(1) If more than one type of available equipment is to be entered, then the code numbers must be added together. Example: Brake pad wear indicator & seat belt warning: 01 + 02 = 03.

NOTE:

- **The distance impulse number is a constant used to calculate speed and distance travelled.**
- **The distance impulse number (K number) can be read using function 10 "Adaptation". See Distance impulse number (K number), reading .**

Indicated on display:

- Press -Q- button to confirm input.

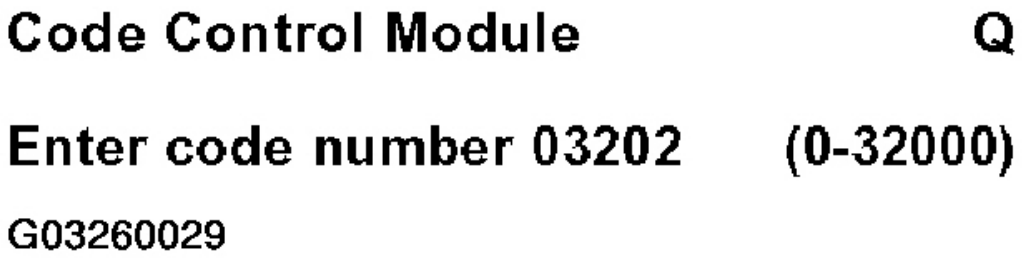


Fig. 130: VAG 1551 Scan Tool Display - Instrument Cluster Coding, Up To 10.00 Models (4 Of 8)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display (example only):

- Press --> button.

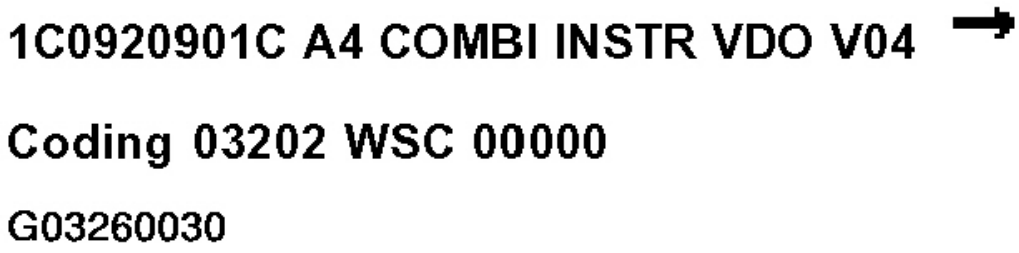


Fig. 131: VAG 1551 Scan Tool Display - Instrument Cluster Coding, Up To 10.00 Models (5 Of 8)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press --> button.

Fig. 132: VAG 1551 Scan Tool Display - Instrument Cluster Coding, Up To 10.00 Models (6 Of 8)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display (select function)

Ending function:

- Press buttons -0- and -6- to select function 06 "End output".

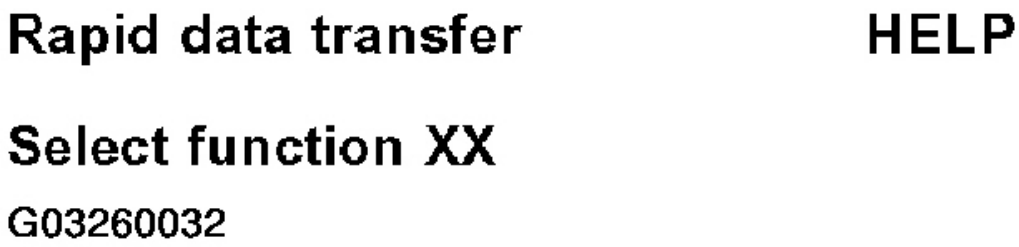


Fig. 133: VAG 1551 Scan Tool Display - Instrument Cluster Coding, Up To 10.00 Models (7 Of 8)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm input.

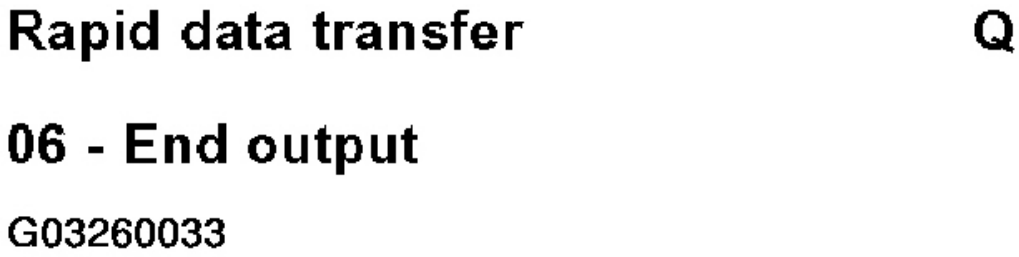


Fig. 134: VAG 1551 Scan Tool Display - Instrument Cluster Coding, Up To 10.00 Models (8 Of 8)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

INSTRUMENT CLUSTER FROM 10.00 MODELS, CODING (FUNCTION 07)

Use this function to code the control module with indicator unit in instrument cluster -J285- with the following information:

- Available equipment
- Market version
- Code number for service intervals
- Code number for distance impulse number ("K" number)

Coding

- Connect VAG 1551 scan tool (ST), select operating mode 1 "Rapid data transfer", switch on ignition and input address word 17 "Instrument cluster".

After control module identification and immobilizer identification number are displayed:

- Press --> button.

Indicated on display:

- Press buttons -0- and -7- to select function 07 "Code control module".

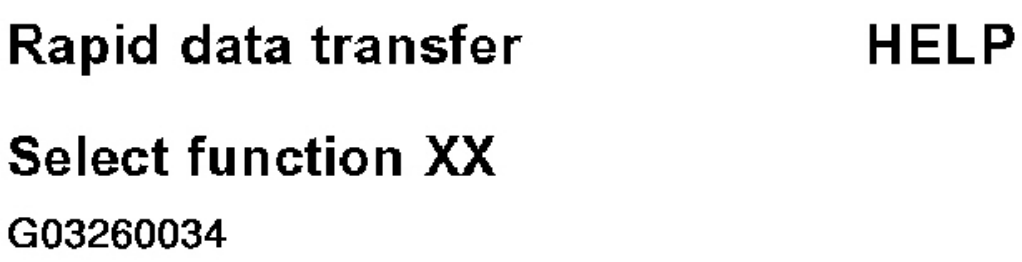


Fig. 135: VAG 1551 Scan Tool Display - Instrument Cluster Coding, From 10.00 Models (1 Of 8)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm input.

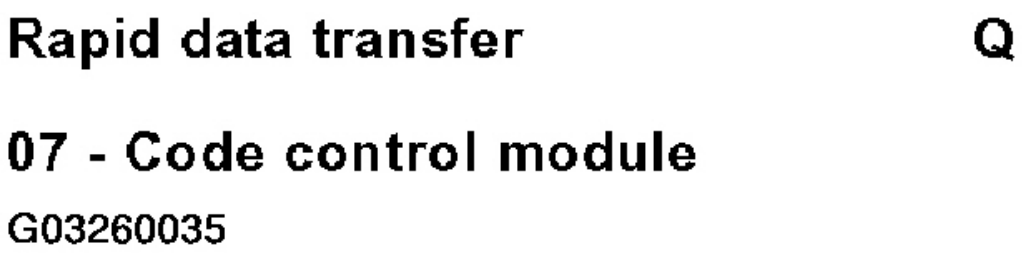


Fig. 136: VAG 1551 Scan Tool Display - Instrument Cluster Coding, From 10.00 Models (2 Of 8)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Confirm applicable available equipment, model and service interval particulars, determine and enter code number from code table. See **INSTRUMENT CLUSTER CODE TABLE (FROM 10.00 MODELS)** .

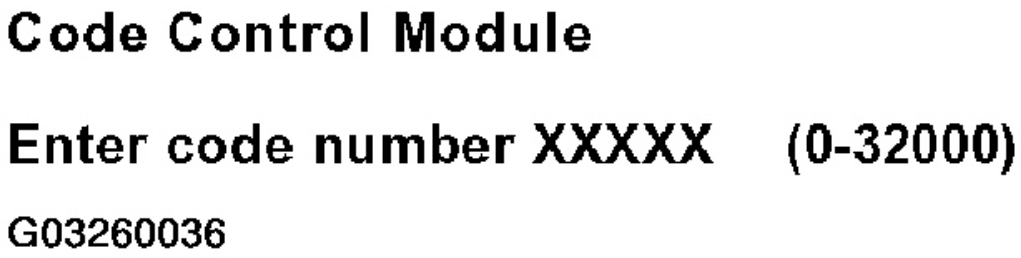


Fig. 137: VAG 1551 Scan Tool Display - Instrument Cluster Coding, From 10.00 Models (3 Of 8)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Coding example:

03 Code number for vehicle options

2 Code number for country version

3 Code number for service intervals

2 Code number for distance impulse number (K-number)

INSTRUMENT CLUSTER CODE (FROM 10.00 MODELS)

Code	Place In Code	Designation
	1st & 2nd Digits	**Available equipment(1)**
00	1st & 2nd Digits	no optional equipment active
01	1st & 2nd Digits	Brake pad wear indicator active
02	1st & 2nd Digits	Seat belt warning active
04	1st & 2nd Digits	Rear spoiler
	3rd Digit	**Market version**
2	3rd Digit	USA (US)
3	3rd Digit	Canada (CDN)

	4th Digit	**Code number for service intervals**
0	4th Digit	Fixed USA/CDN service intervals - without oil level thermal sensor -G266- installed
2	4th Digit	Fixed USA/CDN service intervals - with oil level thermal sensor -G266- installed
3	4th Digit	Vehicles without service interval display - USA/CDN)
	5th Digit	**Code number for trip impulse number (K-number)** 3528
(1) If more than one type of available equipment is to be entered, then the code numbers must be added together. Example: Brake pad wear indicator & seat belt warning: 01 + 02 = 03.		

NOTE:

- **The distance impulse number is a constant used to calculate speed and distance travelled.**
- **The distance impulse number (K number) can be read using function 10 "Adaptation", See Distance impulse number (K number), reading .**

Indicated on display:

- Press -Q- button to confirm input.

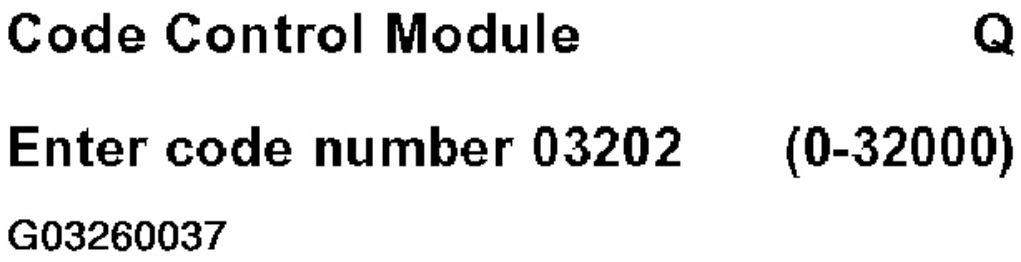


Fig. 138: VAG 1551 Scan Tool Display - Instrument Cluster Coding, From 10.00 Models (4 Of 8)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display (example only):

- Press --> button.

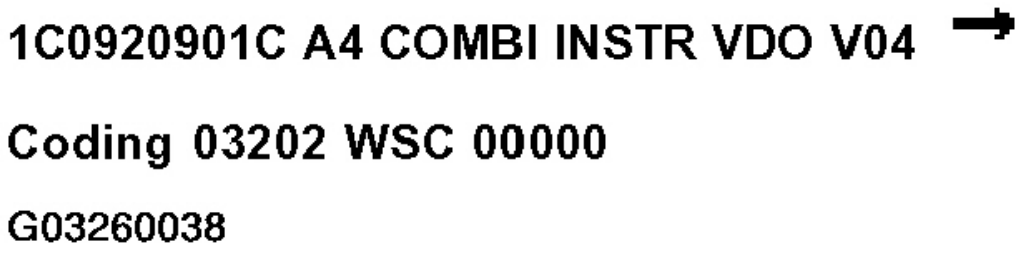


Fig. 139: VAG 1551 Scan Tool Display - Instrument Cluster Coding, From 10.00 Models (5 Of 8)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press --> button.

Fig. 140: VAG 1551 Scan Tool Display - Instrument Cluster Coding, From 10.00 Models (6 Of 8)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display (select function)

Ending function:

- Press buttons -0- and -6- to select function 06 "End output".

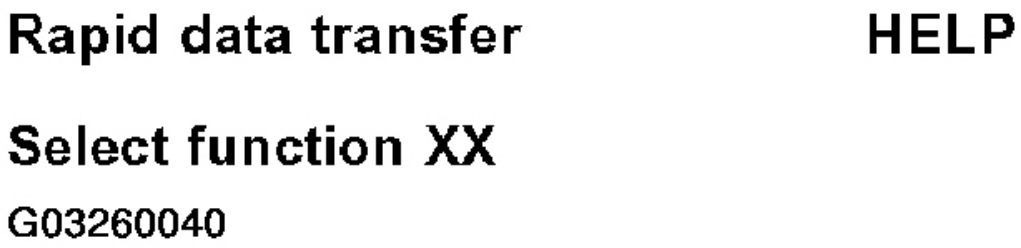


Fig. 141: VAG 1551 Scan Tool Display - Instrument Cluster Coding, From 10.00 Models (7 Of 8)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm input.

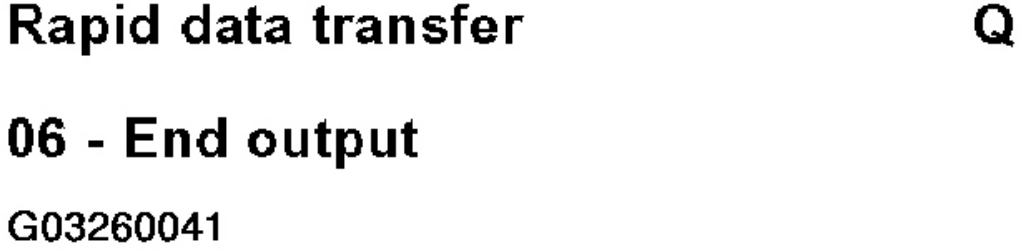


Fig. 142: VAG 1551 Scan Tool Display - Instrument Cluster Coding, From 10.00 Models (8 Of 8)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

READ MEASURING VALUE BLOCK (FUNCTION 08)

The measuring value block is divided into 4 display groups. The assignment of the individual display fields can be taken from the display group overview. See **Display groups, interpreting** .

Use this function to observe various instrument cluster inputs.

- Connect VAG 1551 Scan Tool (ST), select operating mode 1 "Rapid data transfer", switch on ignition and input address word 17 "Instrument cluster".

After control module identification and immobilizer identification number are displayed:

- Press --> button.

Indicated on display:

- Press buttons -0- and -8- to select function 08 "Read measuring value block".

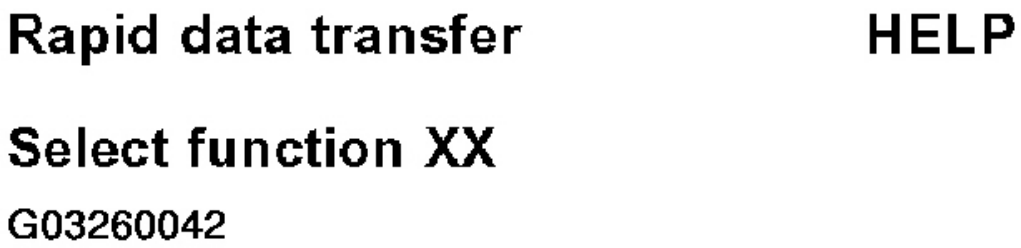


Fig. 143: VAG 1551 Scan Tool Display - Read Measuring Value Block, From 06.99 & Up (1 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm input.

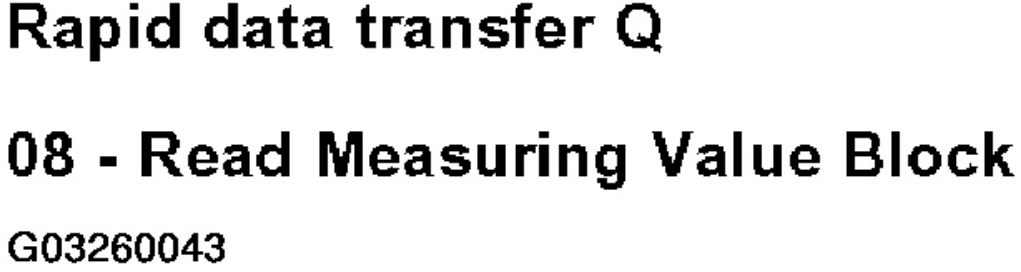


Fig. 144: VAG 1551 Scan Tool Display - Read Measuring Value Block, From 06.99 & Up (2 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Using the Scan Tool (ST) button pad, enter required display group number (following example shows display group 001). Press keys 0, 0 and 1 for "Display group number 1" and press -Q- button to confirm input.

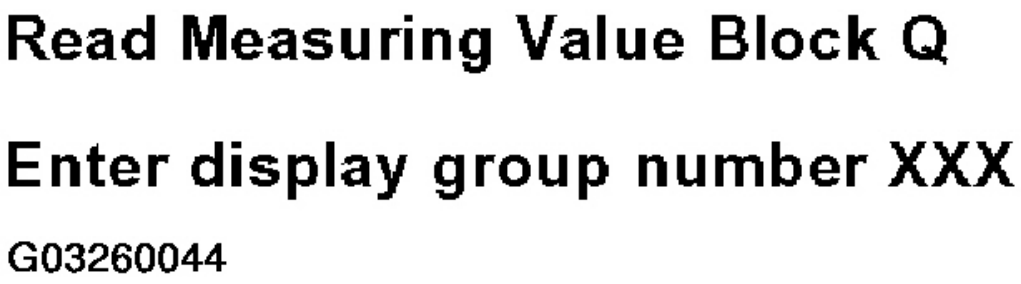


Fig. 145: VAG 1551 Scan Tool Display - Read Measuring Value Block, From 06.99 & Up (3 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display: (1 ... 4 = Display zones)

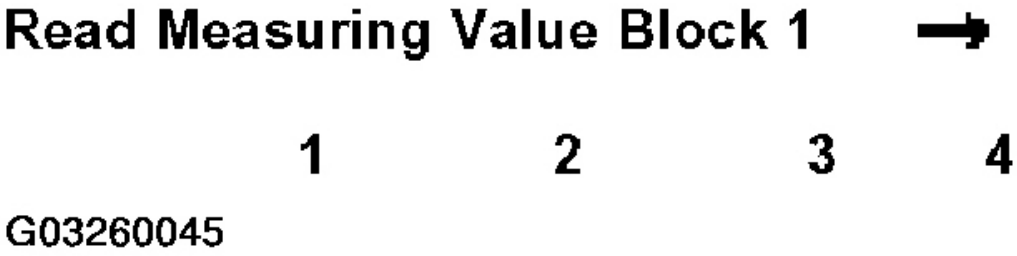


Fig. 146: VAG 1551 Scan Tool Display - Read Measuring Value Block, From 06.99 & Up (4 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE:

- **Interpreting display groups and evaluating measured values in individual display fields. See Display groups, interpreting .**
- **With printer switched on, information on display is printed out.**
- **To easily change between display groups, proceed as follows:**

DISPLAY GROUPS VAG 1551 AND 1552

Display group	VAG 1551	VAG 1552
Higher	Press button 3	Press --> button
Lower	Press button 1	Press --> button
Skip	Press button C	Press button C

- Displayed after pressing -C- button.

Indicated on display:

- Enter display group number as needed tables beginning, See **Display groups, interpreting** .

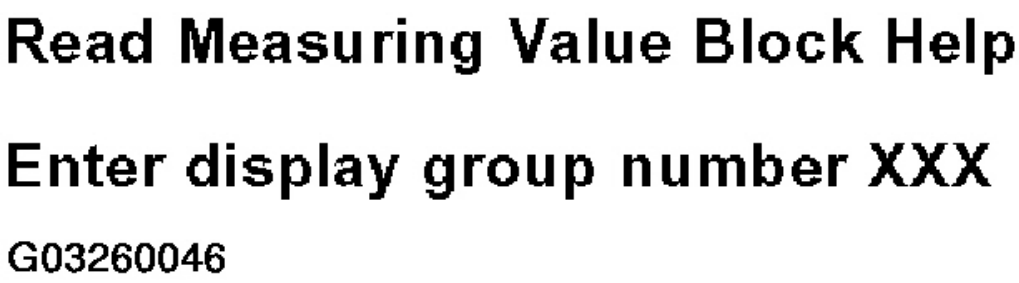


Fig. 147: VAG 1551 Scan Tool Display - Read Measuring Value Block, From 06.99 & Up (5 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE:

- **Display fields always show actual values transmitted from senders and sensors. However, instrument cluster display values can differ from those in the display fields due to internal filtering.**
- **Other display groups are possible, but are not required for On Board Diagnostic program!**

DISPLAY GROUPS, INTERPRETING

Display group 001

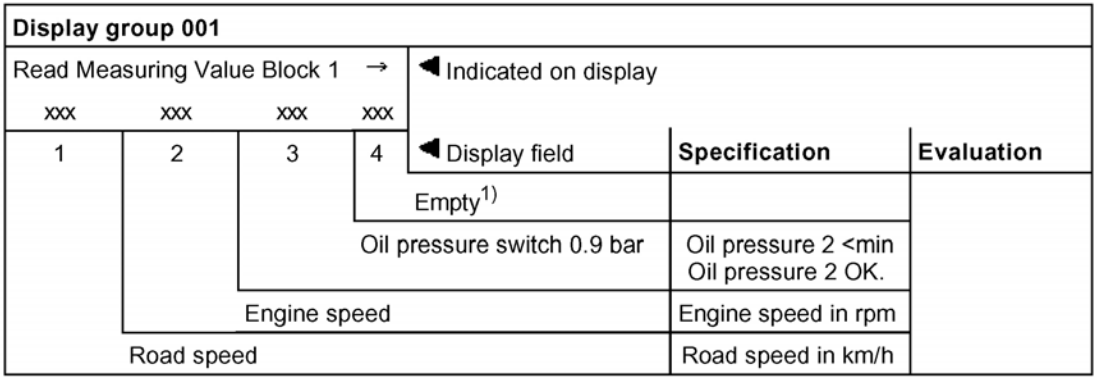


Fig. 148: Display Group 001, From 06.99 & Up
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE: For evaluation of Fig. 148 , see Evaluating display group number 001 .

Evaluating display group number 001

EVALUATING DISPLAY GROUP NUMBER 001 (FROM 06.99 & UP)

Display field	Description	Display	Corrective Action
1	Speed signal	Speed in km/h	• Perform visual check of wiring and connections • Check wiring and connections of affected circuit for correct connection and tight fit while simultaneously observing display. • If display does not change after checking connections, troubleshoot wiring using wiring diagram • Replace relevant component, if necessary. • Erase DTC memory. • Perform functional check • Check DTC memory again.
2	Engine speed	Engine speed in rpm	
3	Oil pressure switch 0.9 bar	Oil pressure 2< min. Oil pressure 2 OK.	

Display group 002

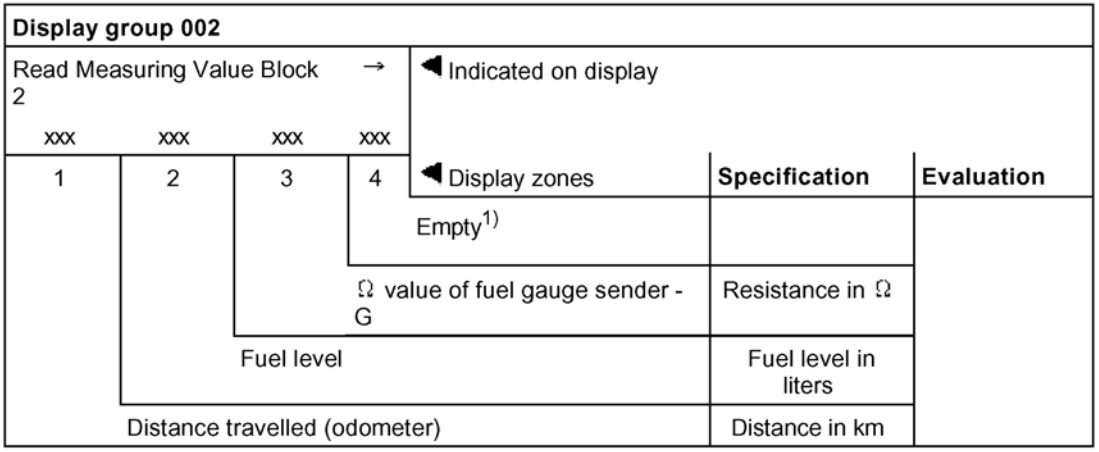


Fig. 149: Display Group 002, From 10.00 Models
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE: For evaluation of Fig. 149 , see Evaluating display group number 002 .

Evaluating display group number 002

EVALUATING DISPLAY GROUP NUMBER 002 (FROM 10.00 MODELS)

Display field	Description	Display	Corrective Action
1	Distance travelled (odometer)	Distance in km	• Perform visual check of wiring and connections • Check wiring and connections of affected circuit for correct connection and tight fit while simultaneously observing display • If display does not change after checking connections, troubleshoot wiring using wiring diagram. • Replace relevant component, if necessary. • Erase DTC memory • Perform functional check • Check DTC memory again
2	Fuel level(1)	Fuel level in liters	
3	ohm value of fuel gauge sender -G	Resistance in ohm	

(1) For an open circuit of the fuel level sender, "0L" is displayed in field 2 and 510 ohm is displayed in field 3. For a short circuit of the fuel level sender, "0L" is displayed in field 2 and 0 ohm is displayed in field 3.

Display group 003

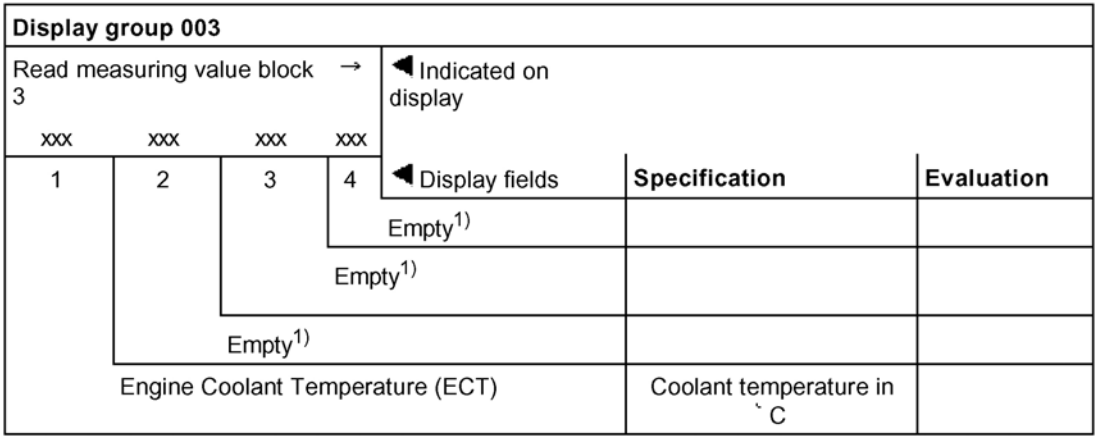


Fig. 150: Display Group 003, From 10.00 Models
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE: For evaluation of Fig. 150 , see Evaluating display group number 003 .

Evaluating display group number 003

EVALUATING DISPLAY GROUP NUMBER 003 (FROM 10.00 MODELS)

Display field	Description	Display	Corrective Action
1	Engine Coolant Temperature (ECT)(1)	ECT in ° C	• Perform visual check of wiring and connections • Check wiring and connections of affected circuit for correct connection and tight fit while simultaneously observing display • If display does not change after checking connections, troubleshoot wiring using wiring diagram • Replace relevant component if necessary • Erase DTC memory • Perform functional check • Check DTC memory again
(1) The coolant temperature value steadily indicates 90° C (194 °F) whenever the actual coolant temperature varies between approx. 75°C (167°F) and 107°C (225 °F).			

Display Group 050

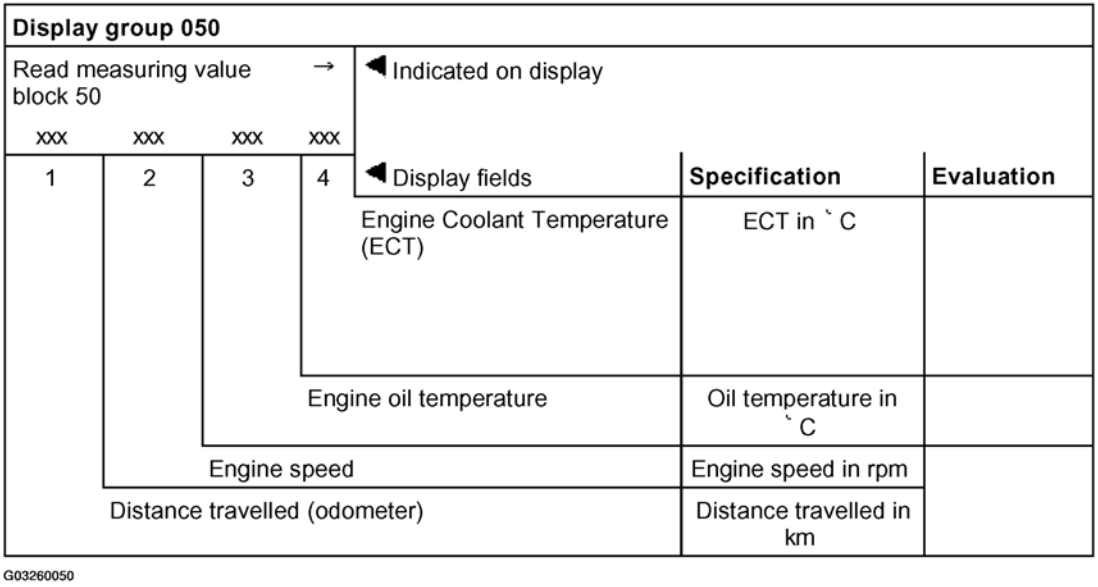


Fig. 151: Display Group 050, From 10.00 Models
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE: For evaluation of Fig. 151 , see Evaluating display group number 050 .

Evaluating display group number 050

EVALUATING DISPLAY GROUP NUMBER 050 (FROM 10.00 MODELS)

Display field	Description	Display	Corrective Action
1	Distance travelled	Distance travelled in km	• Perform visual check of wiring and connections • Check wiring and connections of affected circuit for correct connection and tight fit while simultaneously observing display • If display does not change after checking connections, troubleshoot wiring using wiring diagram • Replace relevant component, if necessary • Erase DTC memory • Perform functional check • Check DTC memory again
2	Engine speed	Engine speed in rpm	
3	Oil temperature	Oil temperature in °C	
4	Coolant temperature	Coolant temperature in ° C	

ADAPTATION (FUNCTION 10)

Use this function to initiate and store the following changes:

- Adaptation of odometer reading when replacing/exchanging instrument cluster

- Adaptation of fuel gauge reading
- Adaptation of fuel consumption indicator (MFI)

Individual functions are called up using the appropriate adaptation channel number from adaptation table. See **ADAPTATION TABLE (FROM 10.00 MODELS)** .

Adaptation table:

ADAPTATION

Adaptation channel	**Adaptation functions**
09	Odometer, adaptation, See **Odometer, adaptation**
16	Distance impulse number (K number): Read only, cannot be changed, See **Distance impulse number (K number), reading**
30	Fuel gauge, checking (adaptation), See **Fuel gauge, checking (adaptation)**

NOTE: After changing an adaptation value or ending an adaptation channel the function "10 - adaptation" must be performed to select another adaptation channel!

ODOMETER, ADAPTATION

NOTE:

- **Total distance travelled by the vehicle can be read from the malfunctioning instrument cluster or determined by vehicle service history.**
- **Total distance travelled display of new instrument cluster must not be more than 100 km (63 mi) before adaptation.**
- **Total distance travelled to be transferred to the new instrument cluster must exceed 100 km (63 mi).**
- **Adapting total distance travelled is only possible once and only in a positive (upwards) direction.**
- **Adaptation can be interrupted with the "C" button of the VAG 1551/1552 Scan Tool (ST)**
- **Correcting a false entry which has been confirmed is not possible. The instrument cluster must be exchanged for a new one.**
- **For US models, the country code must first be changed to "Canada" before entering the adaptation value.**
- **Adaptation value on instrument clusters must be entered in kilometers. For US models, adaptation value must be converted from miles to kilometers first (miles x 1.609 = kilometers).**

Example:

The malfunctioning instrument cluster has an odometer display of 89627 (either kilometers or miles). The

odometer display can be transferred to the new instrument cluster as follows:

- Connect VAG 1551 Scan Tool (ST), select 1 "Rapid Data Transfer", switch on ignition, input address word 17 "Instrument cluster".
- Press -Q- button to confirm input.

Various data appears in the display. The manufacturer's code is also displayed.

NOTE: US vehicles from 1999 m.y. must temporarily be changed to "Canada". See INSTRUMENT CLUSTER UP TO 10.00 MODELS, CODING (FUNCTION 07) .

Indicated on display:

- Press button -1- twice to select "Login Procedure" function 11
- Press -Q- button to confirm input.

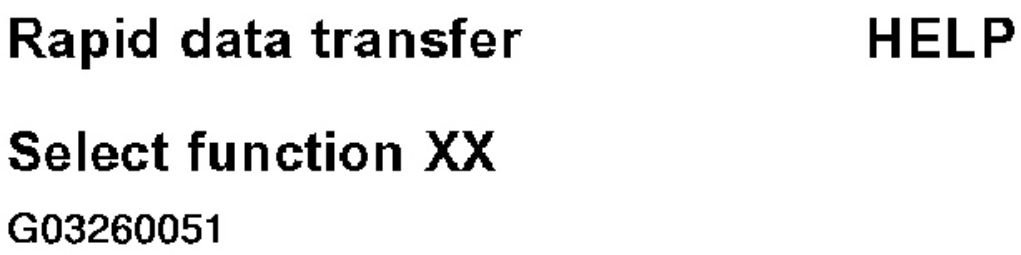


Fig. 152: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (1 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm input.

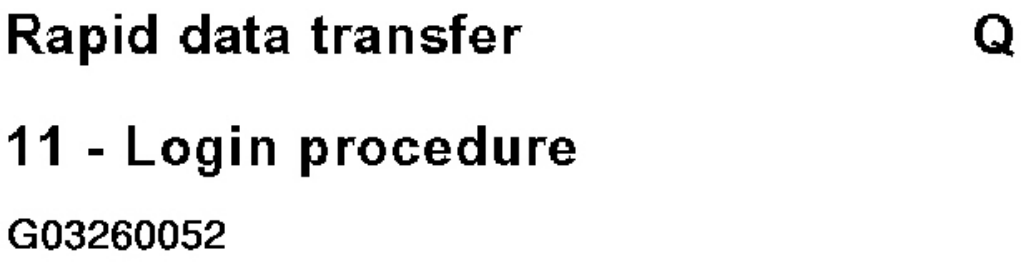


Fig. 153: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (2 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Input code number 13861.

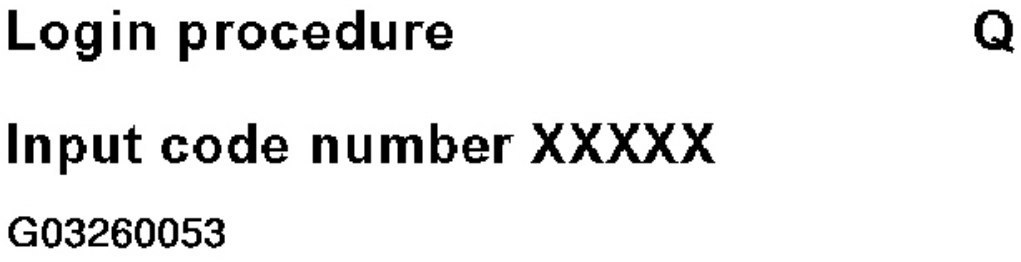


Fig. 154: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (3 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

If a wrong code is entered, "FAIL" appears in odometer display.

In this case, battery terminal 30 must be disconnected and reconnected and the login procedure repeated using the correct code.

- Press -Q- button to confirm input.

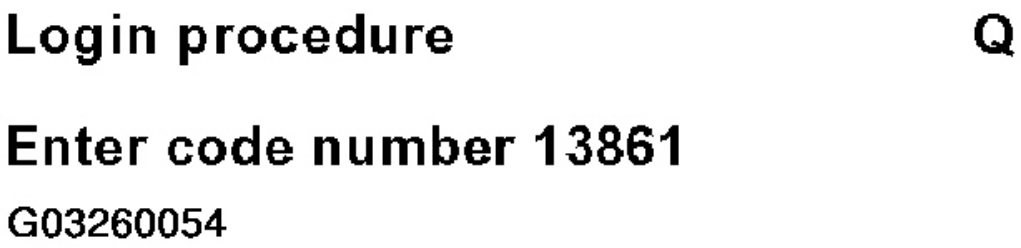


Fig. 155: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (4 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display (select function):

- Press buttons -1- and -0- to select function 10, "Adaptation".

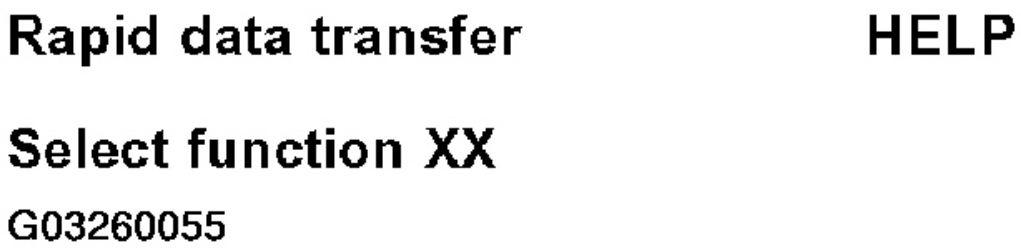


Fig. 156: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (5 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm input.

Fig. 157: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (6 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press buttons -0- and -9- to select channel 09.

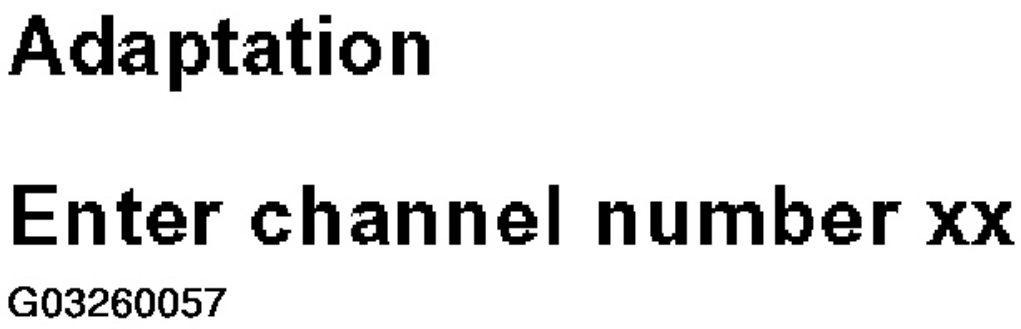


Fig. 158: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (7 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm input.

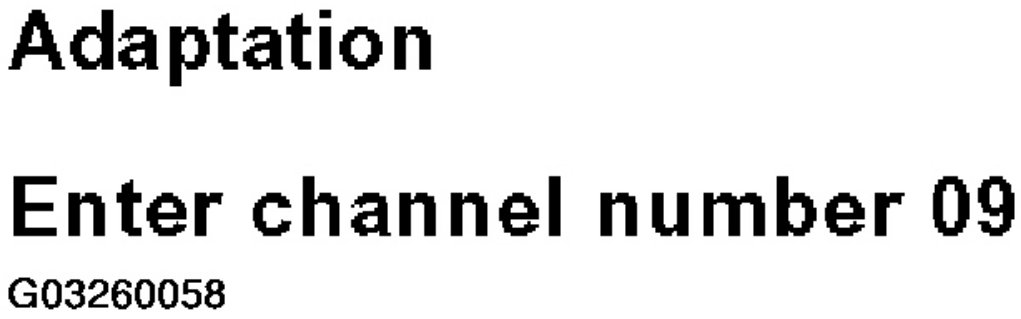


Fig. 159: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (8 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Indicated on display:
- Move forward in program by pressing --> button.

Fig. 160: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (9 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Input adaptation value (odometer reading) using VAG 1551/1552 button pad.

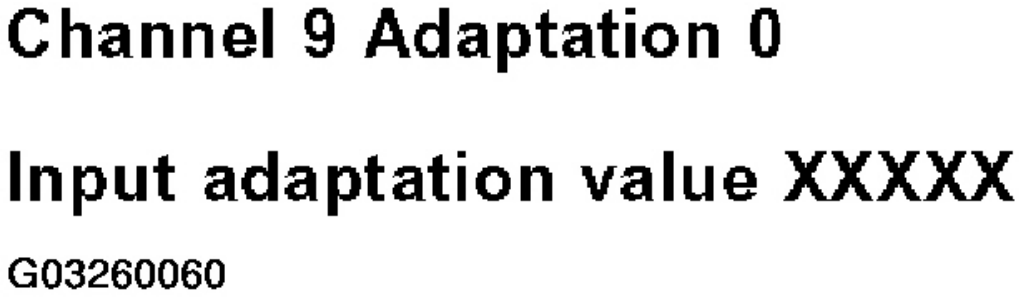


Fig. 161: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (10 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The last position of the odometer reading must be rounded off to the nearest 10.

For US models, first convert miles to kilometers (e.g., 55704 mi X 1.609 = 89627 km)

An odometer reading of 89627 kilometers produces an adaptation value of: *08963*

ODOMETER ADAPTATION CHART

X	-	-	-	-	Hundred thou.: 100000 ... 655350 km
-	X	-	-	-	Ten thousands: 10000 ... 90000 km
-	-	X	-	-	Thousands: 1000 ... 9000 km
-	-	-	X	-	Hundreds: 100 ... 900 km
-	-	-	-	X	Tens: 10 ... 90 km
-	-	-	-	-	Ones: round up to next ten

- Input adaptation value using VAG 1551/1552 button pad.

Indicated on display:

- Press -Q- button to confirm input.

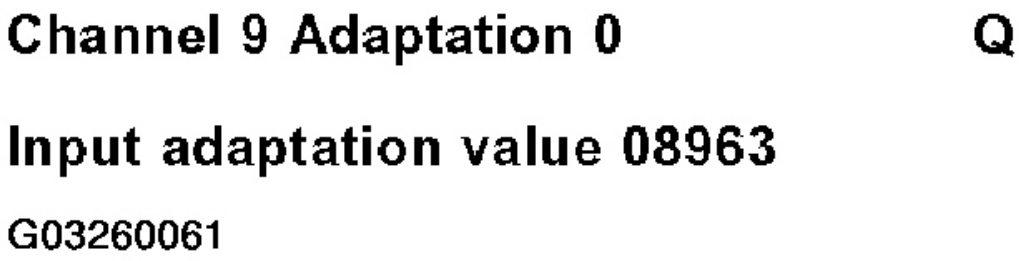


Fig. 162: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (11 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm input.

Fig. 163: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (12 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

If adaptation value is not correct, e.g. a false entry:

- **Press -C- button to input correct value .**
- **Press -Q- button to confirm input .**

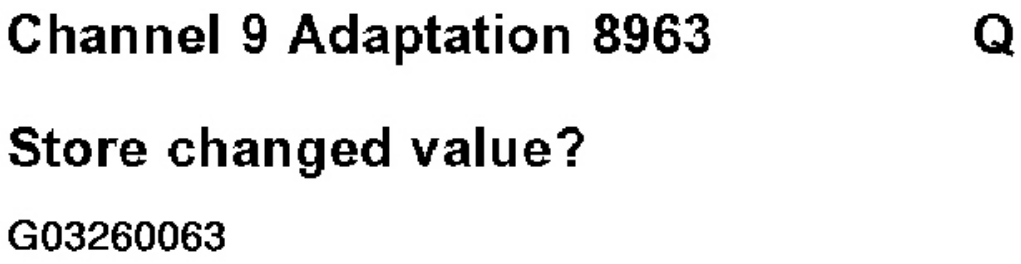


Fig. 164: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (13 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press --> button to complete adaptation sequence.

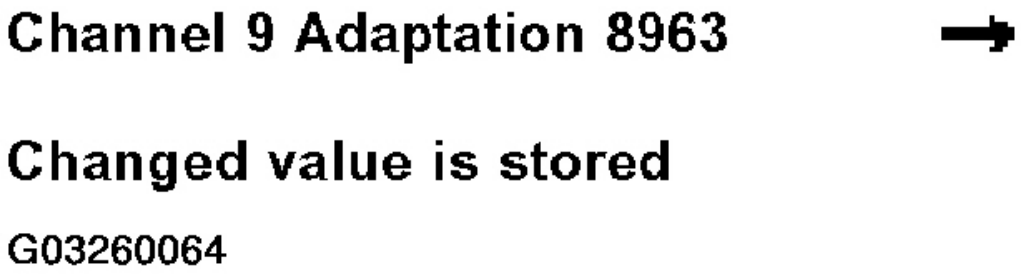


Fig. 165: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (14 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE:

- **For Canadian vehicles, the procedure is now complete.**
- **For US vehicles, instrument clusters must now be returned from kilometers to miles (change country code), See INSTRUMENT CLUSTER UP TO 10.00 MODELS, CODING (FUNCTION 07) .**

Indicated on display (select function):

- Press buttons -0- and -6- to select function 06 "End output".

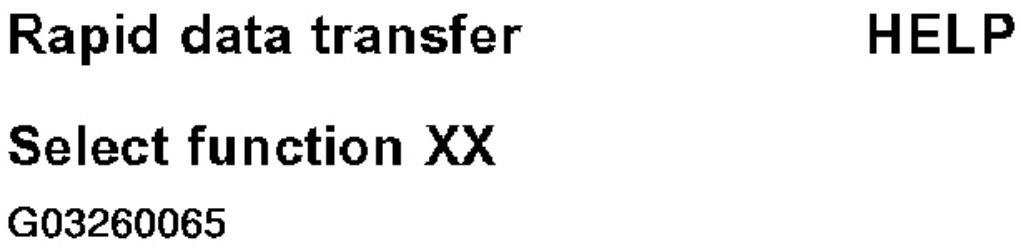


Fig. 166: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (15 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm input.

Fig. 167: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (16 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

The scan tool returns to the start of the program sequence.

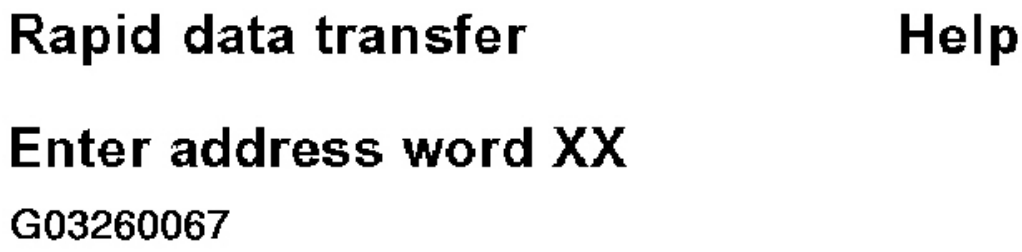


Fig. 168: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (17 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Distance impulse number (K number), reading

The distance impulse number is a constant used by the instrument cluster to calculate speed and distance travelled.

NOTE:

- **The distance impulse number (K number) is preset from the manufacturer and cannot be changed.**
- **To change the distance travelled number, a code number corresponding to the vehicle engine/gearbox combination must be entered using function 07 "Code Control Module". See INSTRUMENT CLUSTER UP TO 10.00 MODELS, CODING (FUNCTION 07) .**
- **For instrument clusters with a display in miles, the distance impulse number will still be displayed for kilometers.**
- **Distance impulse number for miles can be converted to kilometers (Distance impulse number for kilometers x 1.609 = distance impulse number for miles).**
- **Interrupt reading of distance impulse number by pressing C button on VAG 1551.**

- Connect scan tool VAG 1551, select operating mode 1 "Rapid data transfer", switch on ignition and enter address word 17 "Instrument cluster".

After control module identification and immobilizer identification number are displayed:

- Press -Q- button to confirm input.

Indicated on display (select function):

- Press buttons -1- and -0- to select function 10 "Adaptation".

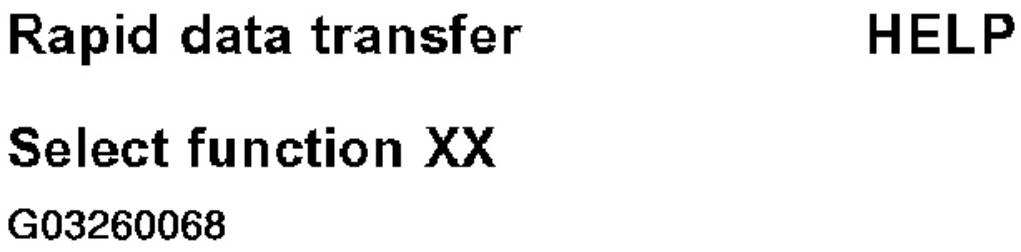


Fig. 169: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (18 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm input.

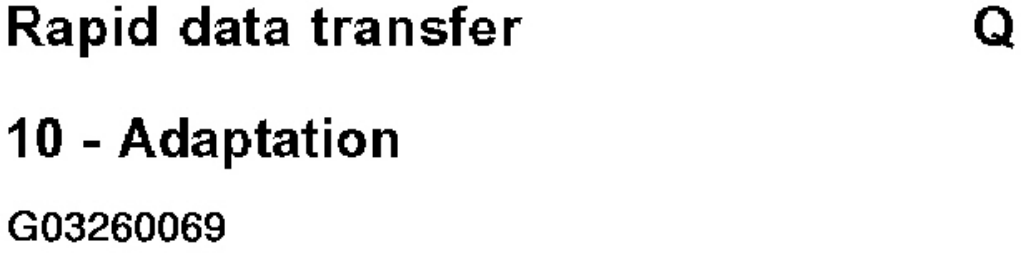


Fig. 170: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (19 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press buttons -1- and -6- to select channel 16.

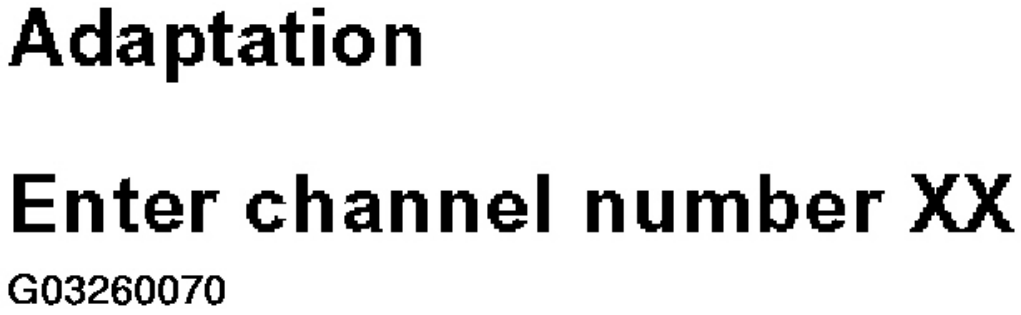


Fig. 171: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (20 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm input.

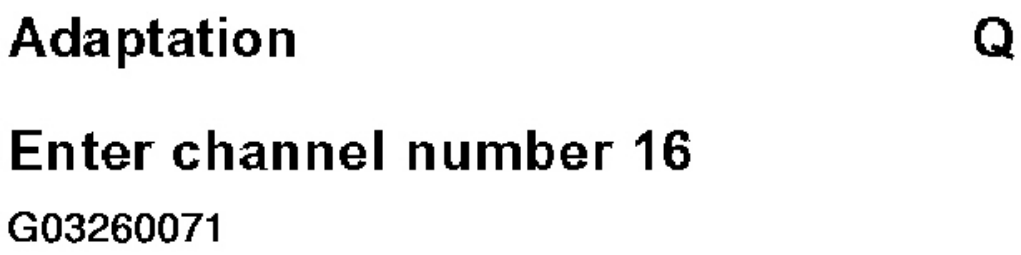


Fig. 172: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (21 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Compare distance impulse number for vehicle engine/gearbox combination with table. See **INSTRUMENT CLUSTER CODE TABLE (UP TO 10.00 MODELS)** .
- Interrupt reading of distance impulse number by pressing -C- button.

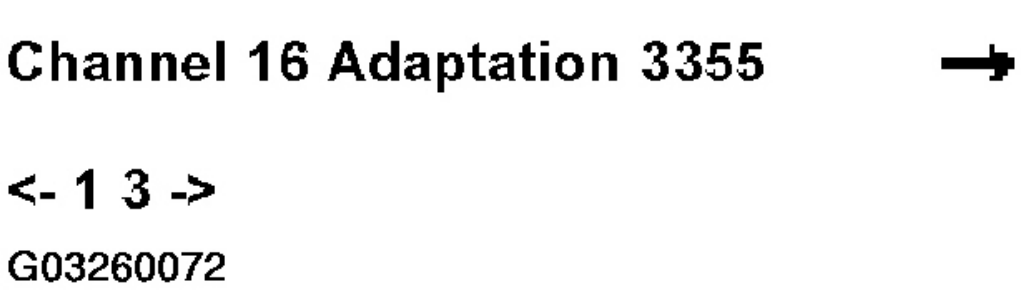


Fig. 173: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (22 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press "C" button.

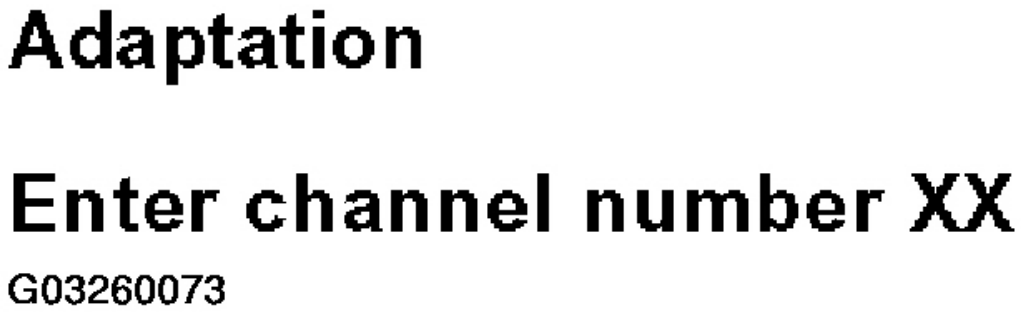


Fig. 174: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (23 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press buttons -0- and -6- to select function 06 "End output".

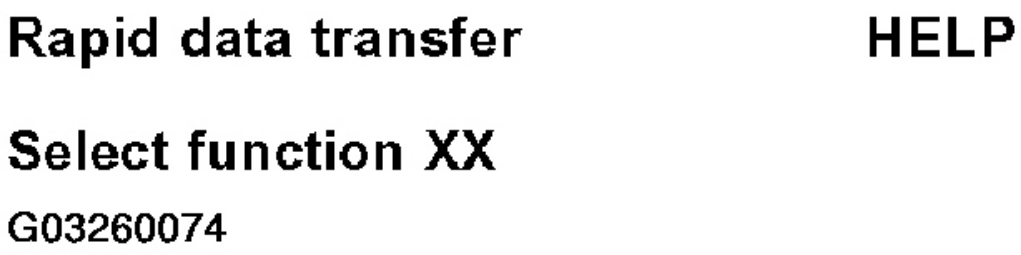


Fig. 175: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (24 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm input.

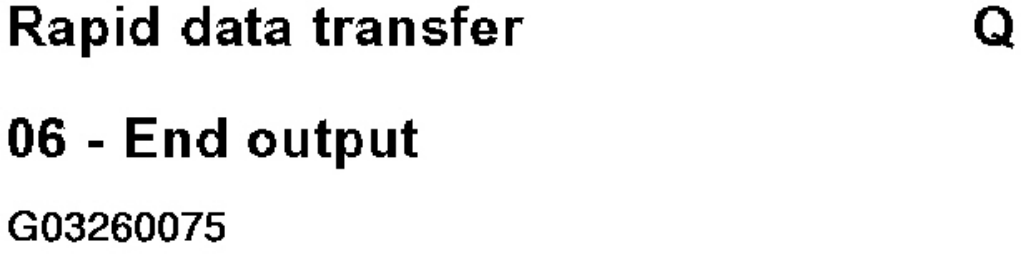


Fig. 176: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (25 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Switch off ignition.
- Disconnect VAG 1551/1552 Scan Tool (ST) from Data Link Connector (DLC).

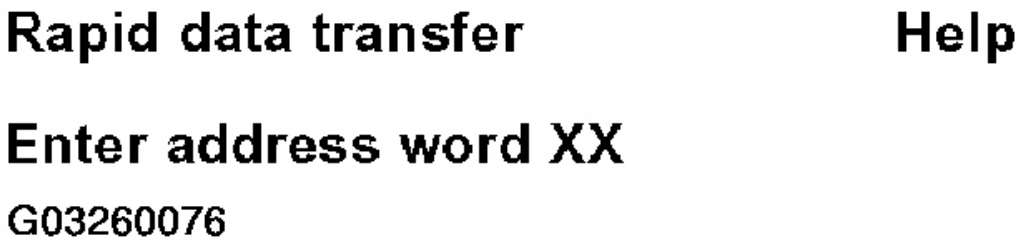


Fig. 177: VAG 1551 Scan Tool Display - Odometer Adaptation, From 10.00 Models (26 Of 26)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

FUEL GAUGE, CHECKING (ADAPTATION)

If the fuel gauge displays the contents of the fuel tank as being too high or too low, the fuel gauge needle position can be corrected (adapted).

- Perform Output Diagnostic Test Mode (DTM) for instrument cluster. See **OUTPUT DIAGNOSTIC TEST MODE (DTM), (FUNCTION 03)** .
- Check function of fuel gauge sender if Output Diagnostic Test Mode (DTM) does not indicate a malfunction.
- Check resistance value of fuel gauge sender in measuring value block. See **READ MEASURING VALUE BLOCK (FUNCTION 08)** .

If measuring value block does not indicate a short circuit or open circuit in the wiring or the fuel gauge sender, continue checks:

Special tools, testers, measuring units and auxiliary items required

- Fuel extraction unit VAG 1433 A (or local equivalent)
  - Switch off ignition.
  - Drain fuel tank completely (VAG 1433 A), then fill with 7 liters (1.84 gal) of fuel (ensure ignition is OFF).

Fig. 178: Identifying Fuel Extraction Unit VAG 1433 A (Or Local Equivalent)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE:

- **Wait a minimum of 1 minute before proceeding with adaptation in order to ensure a stable fuel level for adaptation purposes.**

WARNING:

- **Fire hazard. DO NOT smoke or work near heaters or have anything in the area that can ignite fuel.**
- **Always drain fuel from fuel tank using an approved fuel cart.**
- **Wear fuel-resistant gloves whenever working with open parts of the**

fuel system.

- Connect VAG 1551 Scan Tool (ST), select 1 "Rapid Data Transfer", switch on ignition, input address word 17 "Instrument cluster".

Indicated on display:

- Press -Q- button to confirm input.

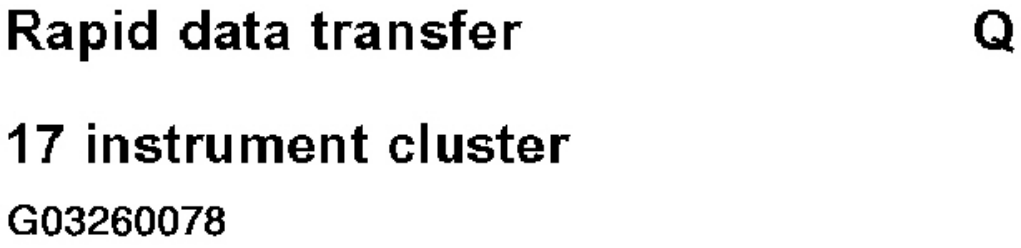


Fig. 179: VAG 1551 Scan Tool Display - Fuel Gauge Checking, From 10.00 Models (1 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display (example only):

- Press -Q- button to confirm input.

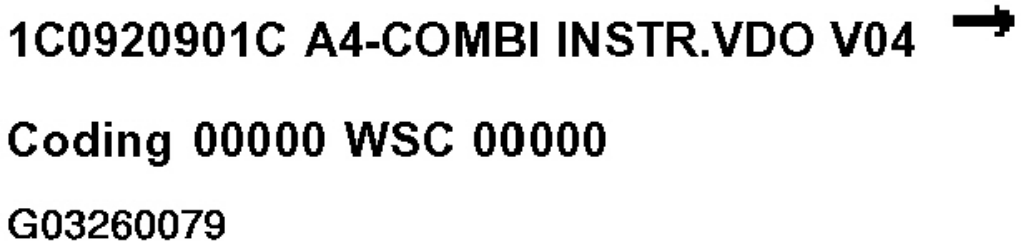


Fig. 180: VAG 1551 Scan Tool Display - Fuel Gauge Checking, From 10.00 Models (2 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm input.

Fig. 181: VAG 1551 Scan Tool Display - Fuel Gauge Checking, From 10.00 Models (3 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display (select function):

- Press buttons -1- and -0- to select function 10 "Adaptation".

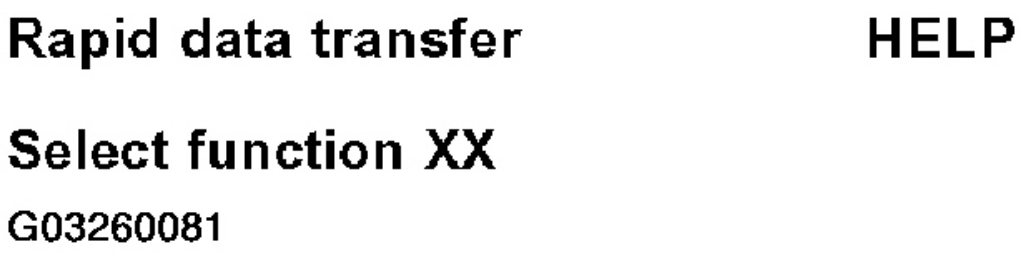


Fig. 182: VAG 1551 Scan Tool Display - Fuel Gauge Checking, From 10.00 Models (4 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm input.

Fig. 183: VAG 1551 Scan Tool Display - Fuel Gauge Checking, From 10.00 Models (5 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press buttons -3- and -0- to select channel 30.

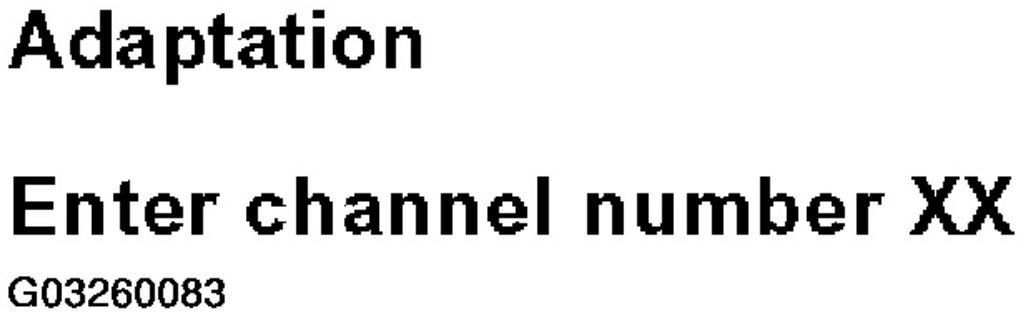


Fig. 184: VAG 1551 Scan Tool Display - Fuel Gauge Checking, From 10.00 Models (6 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm input.

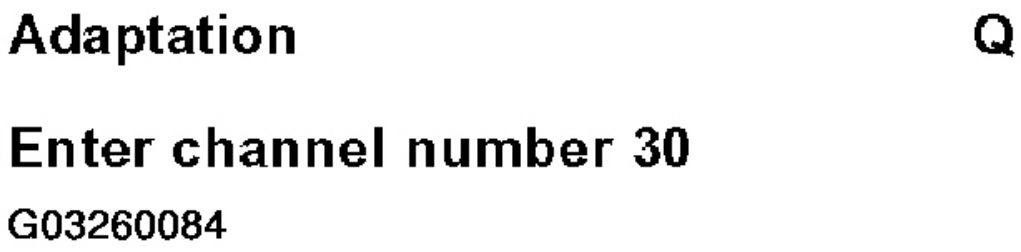


Fig. 185: VAG 1551 Scan Tool Display - Fuel Gauge Checking, From 10.00 Models (7 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Use button 1 to decrease adaptation value down to 120
- Use button 3 to increase value up to 136, e.g. 130.

Fig. 186: VAG 1551 Scan Tool Display - Fuel Gauge Checking, From 10.00 Models (8 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Indicated on display:

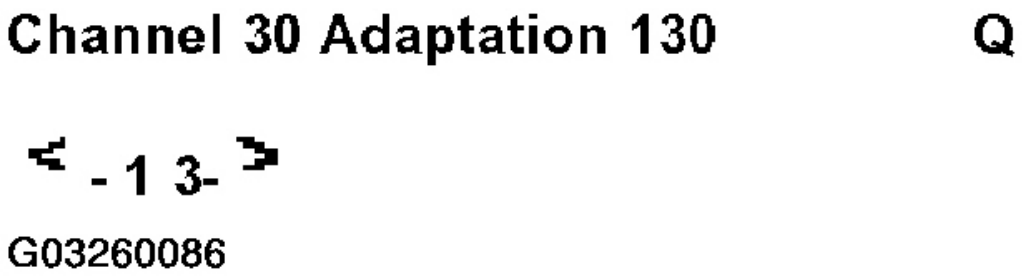


Fig. 187: VAG 1551 Scan Tool Display - Fuel Gauge Checking, From 10.00 Models (9 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Adaptation is correct when the fuel gauge needle is positioned on the middle of the three red graduations (reserve) as illustrated.

When needle position is OK:

- Press -Q- button to confirm input.

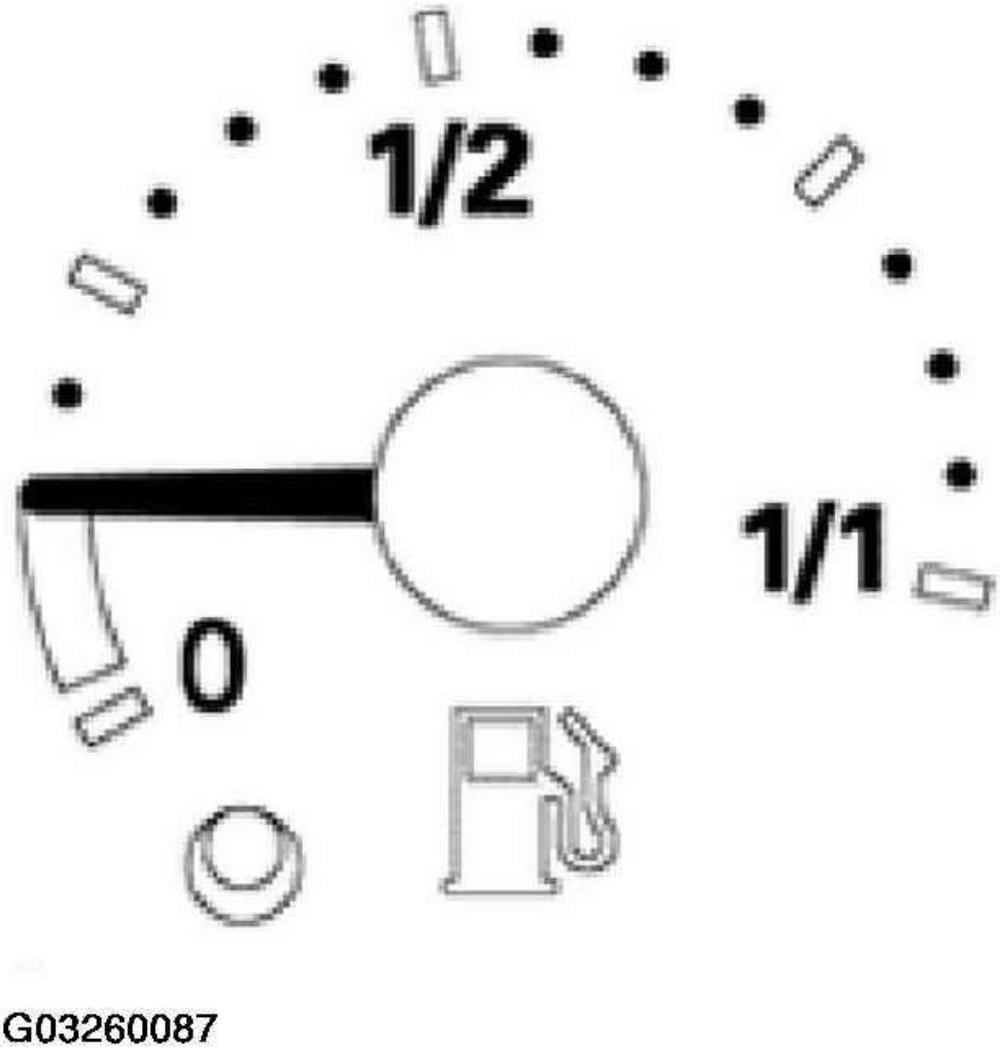


Fig. 188: VAG 1551 Scan Tool Display - Fuel Gauge Checking, From 10.00 Models (10 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- **Indicated on display (example only):**
- **Press -Q- button to confirm input .**

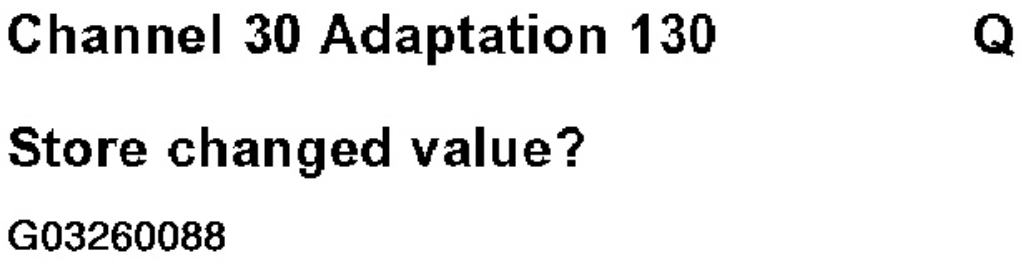


Fig. 189: VAG 1551 Scan Tool Display - Fuel Gauge Checking, From 10.00 Models (11 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- **Indicated on display:**
- **Press --> button to complete adaptation sequence** .

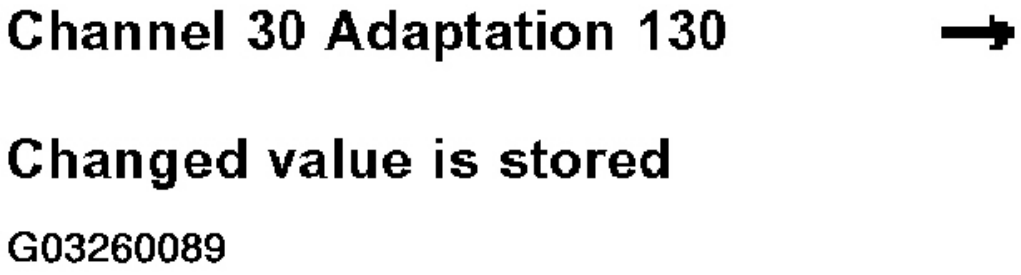


Fig. 190: VAG 1551 Scan Tool Display - Fuel Gauge Checking, From 10.00 Models (12 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

NOTE: If fuel gauge cannot be adapted correctly, replace fuel gauge sender.

- Press buttons -0- and -6- to select function 06 "End output".

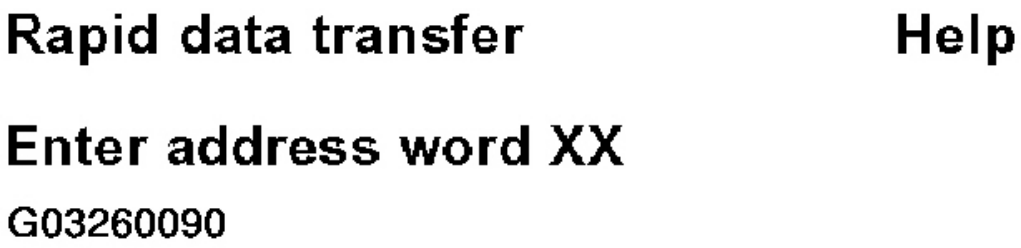


Fig. 191: VAG 1551 Scan Tool Display - Fuel Gauge Checking, From 10.00 Models (13 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm input.

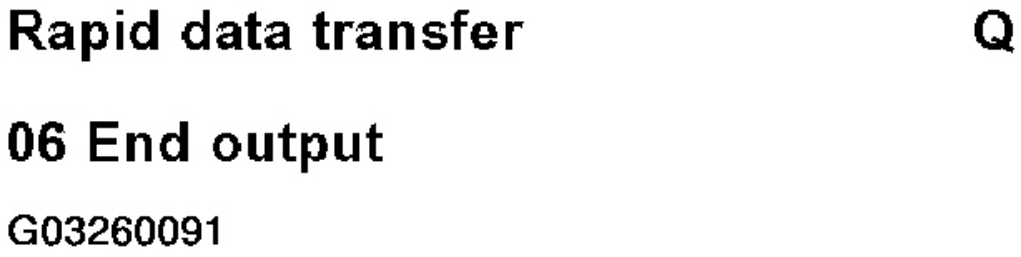


Fig. 192: VAG 1551 Scan Tool Display - Fuel Gauge Checking, From 10.00 Models (14 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

The tester is now in basic function again.

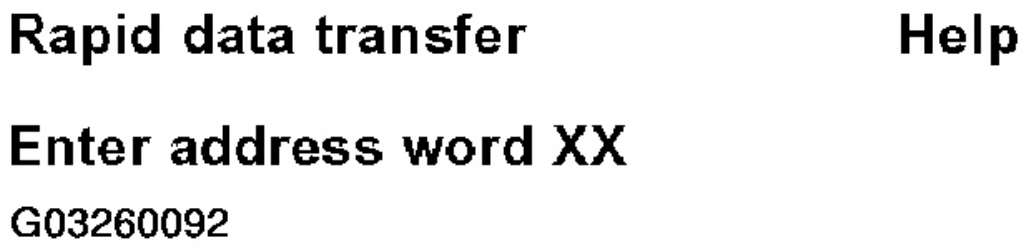


Fig. 193: VAG 1551 Scan Tool Display - Fuel Gauge Checking, From 10.00 Models (15 Of 15)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

DATA BUS ON BOARD DIAGNOSTIC INTERFACE -J533- "GATEWAY"

NOTE: Instrument clusters FROM 06.99 AND UP are integrated into the vehicle CAN Data Bus network (may also be known as "CAN-Bus" or "Data-Bus").

The Data Bus On Board Diagnostic Interface -J533- (which is integrated into the instrument cluster) enables data to be exchanged between the vehicle CAN Data-Bus network and the Data Link Connector (DLC) "K-wire".

The Data Bus On Board Diagnostic Interface -J533- has specific On Board Diagnostic (OBD) capabilities and requires a separate address word.

On replacement instrument clusters, the Data Bus On Board Diagnostic Interface -J533- must be coded according to vehicle market version and equipment level variables, See **DATA BUS ON BOARD DIAGNOSTIC INTERFACE -J533- UP TO 10.00 MODELS, CODING (FUNCTION 07)** .

Connect VAG 1551 Scan Tool (ST), select 1 "Rapid Data Transfer", switch on ignition.

Indicated on display:

- Press buttons -1- and -9- to select Gateway address word 19.

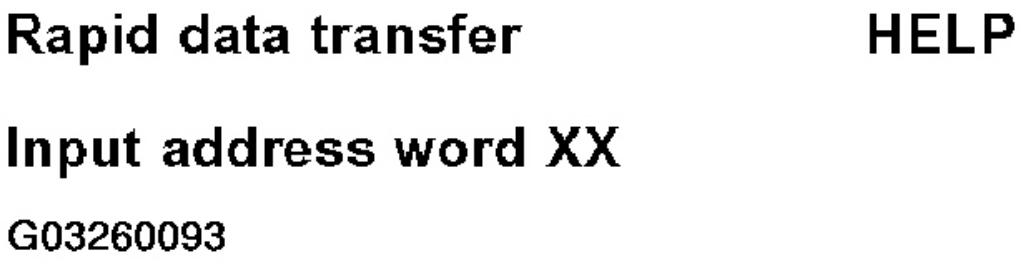


Fig. 194: VAG 1551 Scan Tool Display - Data Bus On Board Diagnostic Interface (1 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm input.

Fig. 195: VAG 1551 Scan Tool Display - Data Bus On Board Diagnostic Interface (2 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

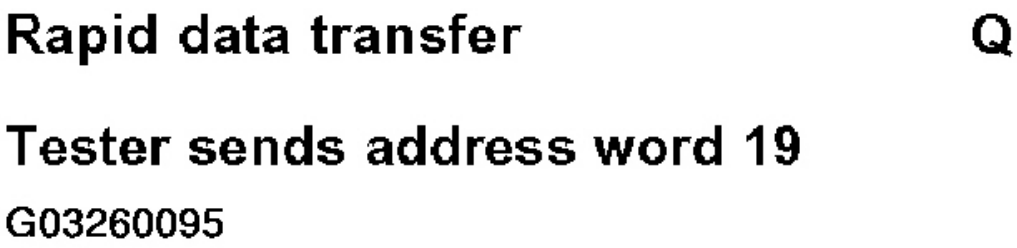


Fig. 196: VAG 1551 Scan Tool Display - Data Bus On Board Diagnostic Interface (3 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display (example only):

Readout, top line

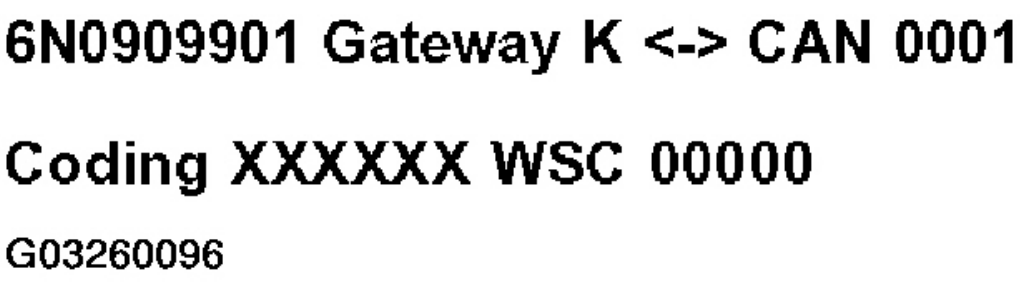


Fig. 197: VAG 1551 Scan Tool Display - Data Bus On Board Diagnostic Interface (4 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- 6N0 909 901 = Control module identification
- Gateway K <-> CAN = System designation (The Data Bus On Board Diagnostic Interface -J533- (which is integrated into the instrument cluster) is identified as "Gateway")
- 0001 = Software version

  Readout, bottom line

- Coding XXXXXX: Code dependent on engine version and optional equipment
- WSC 00000 = Workshop Code

- Press --> button.

Indicated on display (select function):

- List of available functions. See **LIST OF AVAILABLE FUNCTIONS (DATA BUS)** .

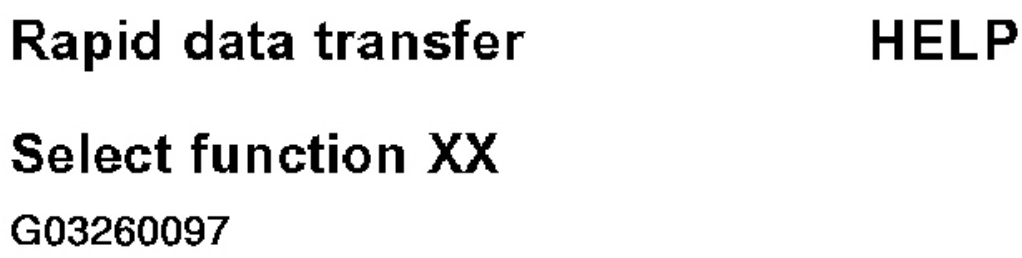


Fig. 198: VAG 1551 Scan Tool Display - Data Bus On Board Diagnostic Interface (5 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

LIST OF AVAILABLE FUNCTIONS

LIST OF AVAILABLE FUNCTIONS (DATA BUS)

Function	Explanation	See
02 -	Check Diagnostic Trouble Code (DTC) memory	**DIAGNOSTIC TROUBLE CODE (DTC) MEMORY, CHECKING (FUNCTION 02)** .
05 -	Erase DTC memory	**DIAGNOSTIC TROUBLE CODE (DTC) MEMORY, ERASING (FUNCTION 05)**
06 -	End output	**END OUTPUT (FUNCTION 06)**
07 -	Code control module 10.00	**DATA BUS ON BOARD DIAGNOSTIC INTERFACE - J533- 10.00, CODING (FUNCTION 07)**
07 -	Code control module 10.00	**DATA BUS ON BOARD DIAGNOSTIC INTERFACE J533- 10.00, CODING (FUNCTION 07)**
08 -	Read measuring value block	**READ MEASURING VALUE BLOCK (FUNCTION 08)**

NOTE:

- **Press the HELP button to print out a complete list of available functions. This list indicates the function capability of the VAG 1551 Scan Tool (ST) only, and does not necessarily reflect the function capability of vehicle systems equipped with OBD. For address word 19, do not attempt to select functions other than those listed above.**
- **After the function is completed and forwarded with the --> button, the VAG 1551 Scan Tool (ST) returns to the following start position:**

Indicated on display:

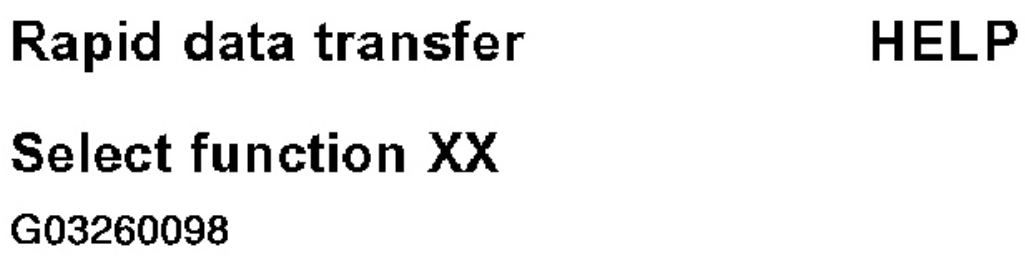


Fig. 199: VAG 1551 Scan Tool Display - Data Bus On Board Diagnostic Interface, From 06.99 And Up (6 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

DIAGNOSTIC TROUBLE CODE (DTC) MEMORY, CHECKING (FUNCTION 02)

NOTE:

- **DTCs stored in memory along with corresponding malfunction descriptions can only be displayed by initiating the On Board Diagnostic program and checking DTC memory (function 02)**
- **Displayed DTC information is not constantly updated. Information can only be displayed information by initiating the On Board Diagnostic program and checking DTC memory (function 02) or with function 05 "Erase DTC memory".**

- Switch on printer with Print button (indicator lamp in key lights up).

Indicated on display (select function):

- Press buttons -0- and -2- to select function 02 "Check Diagnostic Trouble Code (DTC) memory".

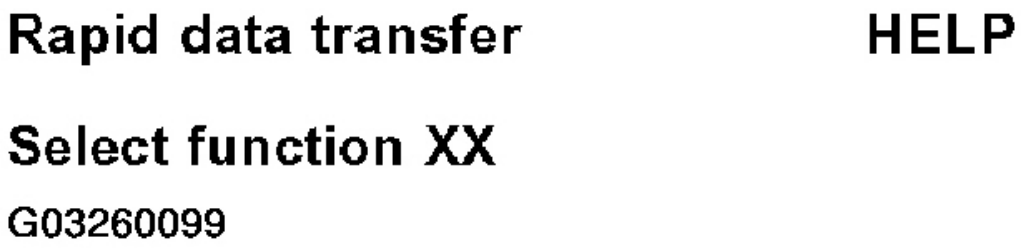


Fig. 200: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Checking (1 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm input.

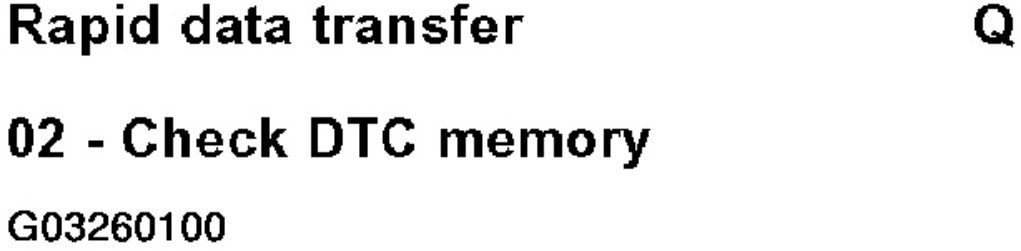


Fig. 201: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Checking (2 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The number of stored malfunctions appear in the display.

The number of stored DTCs or "No DTC s recognized" appears in the display and are printed out one after another.

- When the last DTC has been displayed and printed out, rectify malfunctions as described in DTC table. See **Diagnostic Trouble Code (DTC) table** .

Fig. 202: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Checking (3 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

If "No DTC recognized" is displayed, the program will return to the initial position after pressing --> button.

Fig. 203: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Checking (4 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display (select function):

If display not indicated as shown:

See *Scan tool operating instructions*

- End output (function 06). See **END OUTPUT (FUNCTION 06)** .
- Switch off ignition and disconnect Data Link Connector (DLC).

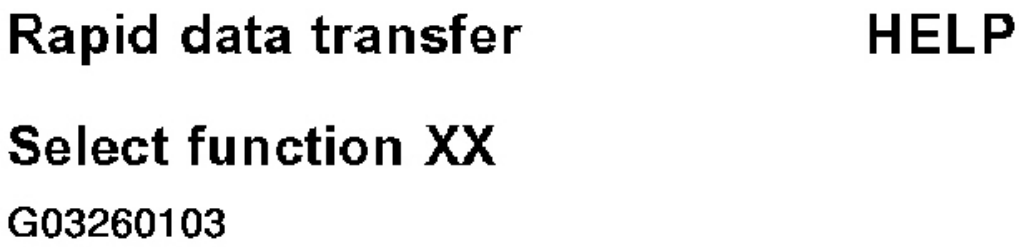


Fig. 204: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Checking (5 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

DIAGNOSTIC TROUBLE CODE (DTC) TABLE

NOTE:

- **The following table lists all malfunctions, with the corresponding 5 digit code numbers, that can be recognized by control module with indicator unit in instrument cluster insert -J285- and printed out by the VAG 1551 Scan Tool (ST).**
- **If malfunctions do not occur regularly, these are displayed as occurring sporadically ("SP").**
- **DTC codes appears only on print-out.**
- **Before replacing components, check the wiring and connections to these components as well as ground connections, according to wiring diagram.**
- **When repair has been carried out, the Diagnostic Trouble Code (DTC) memory must always be erased and checked again with VAG 1551 Scan Tool (ST).**
- **If there is a specific complaint and no malfunctions are recognized after checking Diagnostic Trouble Code (DTC) memory, carry out function 03, OUTPUT DIAGNOSTIC TEST MODE (DTM), (FUNCTION 03) or function 08, READ MEASURING VALUE BLOCK (FUNCTION 08) .**

DIAGNOSTIC TROUBLE CODE

VAG 1551 print out	Possible cause	Possible effects	Corrective Action
01044 Control module incorrectly coded	• A control module connected to vehicle CAN Data Bus network is incorrectly coded • A control module connected to vehicle CAN	Driveability problems (shift pressure, load shift impact) Dynamic driving regulation	• Check DTC memory of all control modules connected to vehicle CAN Data Bus, troubleshoot and repair as necessary. • Confirm correct coding of all

	Data Bus network is malfunctioning	inoperative	control modules coding connected to vehicle CAN Data Bus. • Replace control module.

DIAGNOSTIC TROUBLE CODE

VAG 1551 print out	Possible cause	Possible effects	Corrective Action
01312 Data Bus Drive • Faulty	• Fault in CAN Data Bus Wiring • Data Bus Drive in Bus-Off condition	Driveability problems (shift pressure, load shift impact) Dynamic driving regulation inoperative	• Read measuring value block, function 08, See **READ MEASURING VALUE BLOCK (FUNCTION 08)** • Check DTC memory of all control modules connected to vehicle CAN Data Bus, troubleshoot and repair as necessary • Confirm correct coding of all control modules coding connected to vehicle CAN Data Bus. • Check CAN Data Bus wiring using wiring diagram

DIAGNOSTIC TROUBLE CODE (DTC) MEMORY, ERASING (FUNCTION 05)

NOTE: Erasing DTC memory (function 05) is only possible after checking DTC memory (function 02). If DTC memory cannot be erased, check DTC memory again and rectify indicated malfunctions.

Prerequisites

- Check DTC memory. See **DIAGNOSTIC TROUBLE CODE (DTC) MEMORY, CHECKING (FUNCTION 02)** .
- All malfunctions repaired.

After checking DTC memory:

Indicated on display (select function):

- Press buttons -0- and -5- to select function 05, "Erase DTC memory."

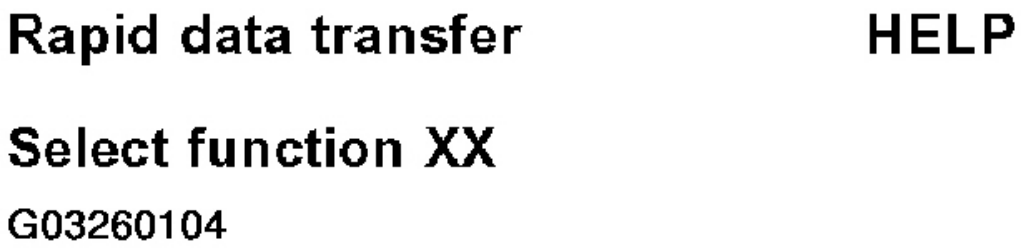


Fig. 205: VAG 1551 Scan Tool Display - Diagnostic Trouble Code (DTC) Memory Erasing, From 06.99 And Up (1 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm input.

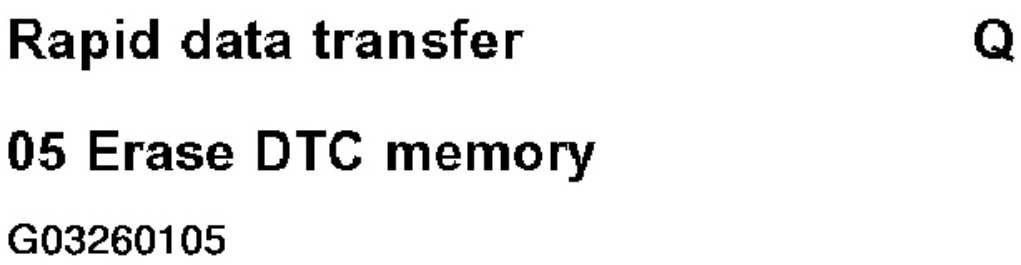


Fig. 206: VAG 1551 Scan Tool Display - Diagnostic Trouble Code (DTC) Memory Erasing, From 06.99 And Up (2 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display (DTC memory is now erased).

- Press --> button.

Fig. 207: VAG 1551 Scan Tool Display - Diagnostic Trouble Code (DTC) Memory Erasing, From 06.99 And Up (3 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display (select function):

- End output (function 06). See **END OUTPUT (FUNCTION 06)** .

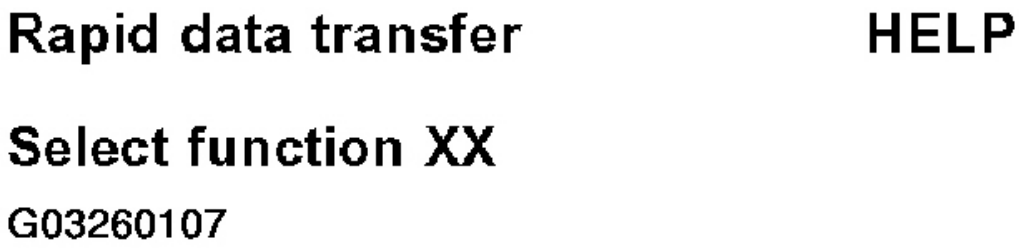


Fig. 208: VAG 1551 Scan Tool Display - Diagnostic Trouble Code (DTC) Memory Erasing, From 06.99 And Up (4 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE:

- **If this appears in the display, test sequence is faulty.**

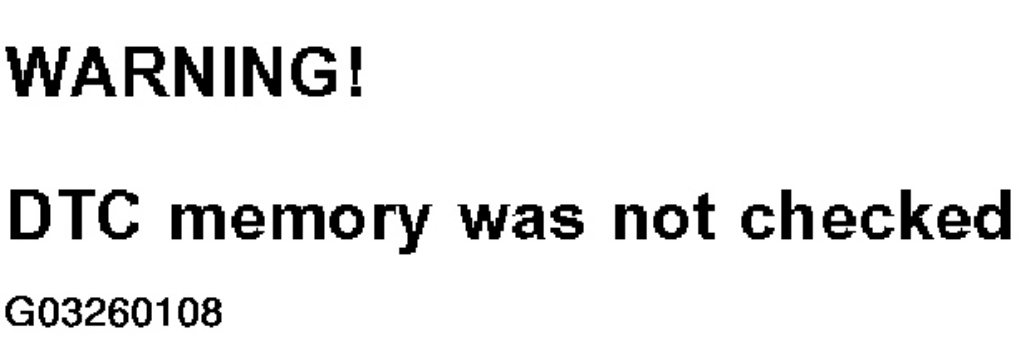


Fig. 209: VAG 1551 Scan Tool Display - Diagnostic Trouble Code (DTC) Memory Erasing, From 06.99 And Up (5 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- **If this appears in the display, test sequence is faulty.**

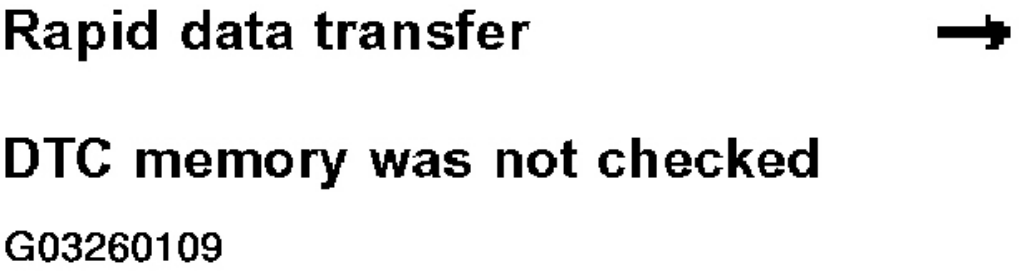


Fig. 210: VAG 1551 Scan Tool Display - Diagnostic Trouble Code (DTC) Memory Erasing, From 06.99 And Up (6 Of 6)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Adhere exactly to test sequence: First check DTC memory, repair malfunctions if necessary, then erase.

END OUTPUT (FUNCTION 06)

- Press buttons -0- and -6- to select function "End output."

Indicated on display:

- Press -Q- button to confirm input.

Fig. 211: VAG 1551 Scan Tool Display - End Output, From 06.99 And Up (1 Of 2)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Switch off ignition.
- Disconnect VAG 1551 Scan Tool (ST) from Data Link Connector (DLC)

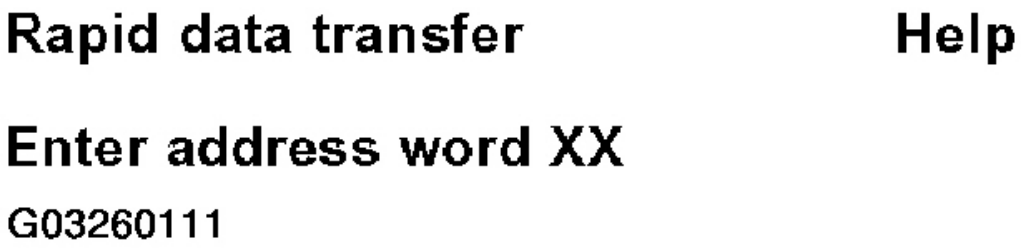


Fig. 212: VAG 1551 Scan Tool Display - End Output, From 06.99 And Up (2 Of 2)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

DATA BUS ON BOARD DIAGNOSTIC INTERFACE -J533- UP TO 10.00 MODELS, CODING (FUNCTION 07)

- Connect VAG 1551 Scan Tool (ST), input address word 19 "Gateway" and then press --> button until

"Select function XX" is shown in display.

- Press buttons -0- and -7- to select function "Code control module".

Indicated on display:

- Press -Q- button to confirm input.

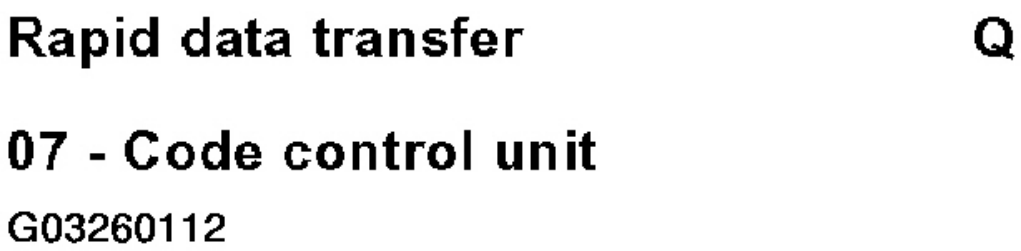


Fig. 213: VAG 1551 Scan Tool Display - Data Bus On Board Diagnostic Interface, Up To 10.00 Models (1 Of 4)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Enter code number compiled from code table

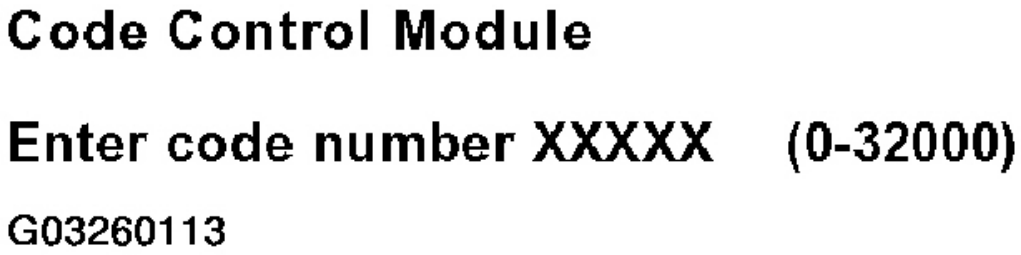


Fig. 214: VAG 1551 Scan Tool Display - Data Bus On Board Diagnostic Interface, Up To 10.00 Models (2 Of 4)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

COMPONENTS AND CODE NUMBER (UP TO 10.00 MODELS)

Control modules to power-train databus	Code
Transmission Control Module (TCM)	00001
ABS Control Module	00002
Airbag Control Module	00004

To determine code number, add applicable control module code numbers together.

Example:

Airbag + ABS + TCM

00004 + 00002 + 00001 = 00007

Indicated on display (example):

- Press -Q- button to confirm input.

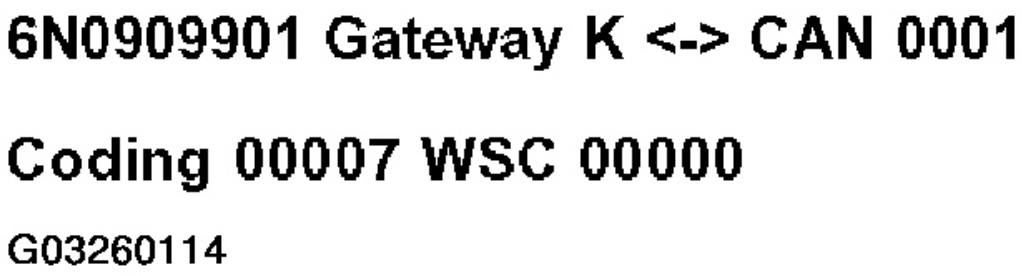


Fig. 215: VAG 1551 Scan Tool Display - Data Bus On Board Diagnostic Interface, Up To 10.00 Models (3 Of 4)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display (select function):

- Press buttons -0- and -6- to select function 06 "End output".

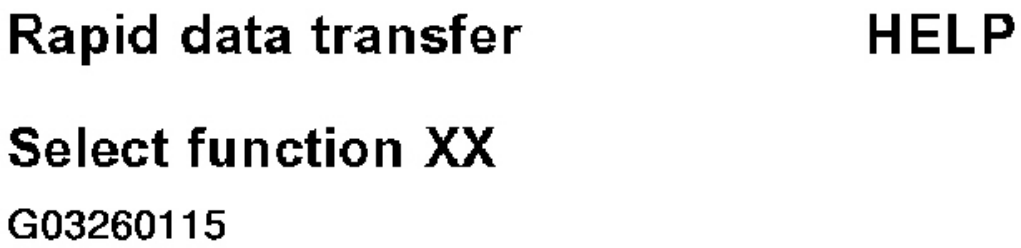


Fig. 216: VAG 1551 Scan Tool Display - Data Bus On Board Diagnostic Interface, Up To 10.00 Models (4 Of 4)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

The scan tool is again in basic function.

DATA BUS ON BOARD DIAGNOSTIC INTERFACE J533- FROM 10.00 MODELS, CODING (FUNCTION 07)

- Connect VAG 1551 Scan tool (ST), input address word 19 "Gateway" and then press button until "Select function XX" is shown in display.
- Press buttons -0- and -7- to select function "Code control module".

Indicate on display:

- Press -Q- button to confirm input.

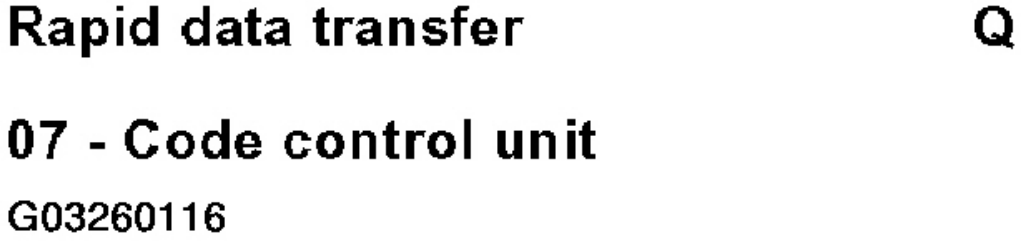


Fig. 217: VAG 1551 Scan Tool Display - Data Bus On Board Diagnostic Interface J533- From 10.00 Models (1 Of 2)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Coding

Indicate on display:

- Enter code number compiled from code table.

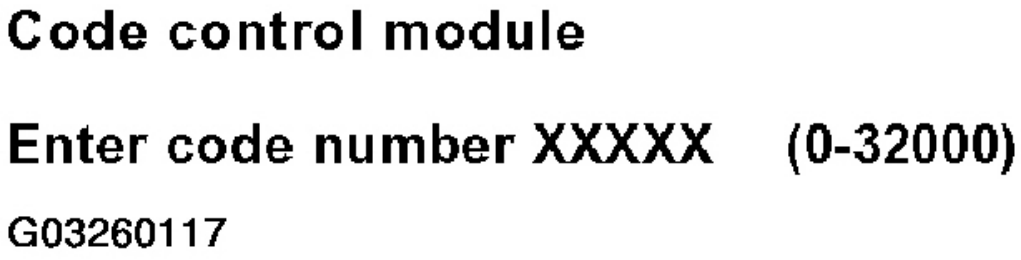


Fig. 218: VAG 1551 Scan Tool Display - Data Bus On Board Diagnostic Interface J533- From 10.00 Models (2 Of 2)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

COMPONENTS AND CODE NUMBER (FROM 10.00 MODELS)

Control modules to power-train databus	Code
ABS activated	00002
Airbag activated	00004
ABS and Airbag activated	00006

NOTE: Transmission control module message is not codified because it is automatically learned.

READ MEASURING VALUE BLOCK (FUNCTION 08)

The measuring value block is divided into 4 display group numbers. Each display group contains individual display fields, See **DISPLAY GROUPS, INTERPRETING** .

Use this function to observe various instrument cluster inputs.

- Connect VAG 1551 Scan Tool (ST), input address word 19 "Gateway" and then press --> button until "Select function XX" is shown in display

Indicated on display:

- Press buttons -0- and -8- to select function "Read measuring value block".

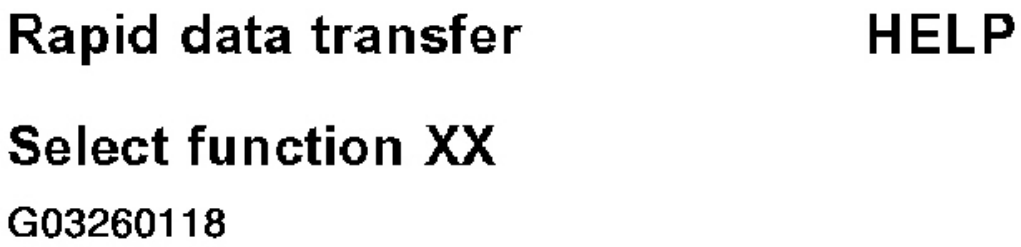


Fig. 219: VAG 1551 Scan Tool Display - Read Measuring Value Block (1 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm input.

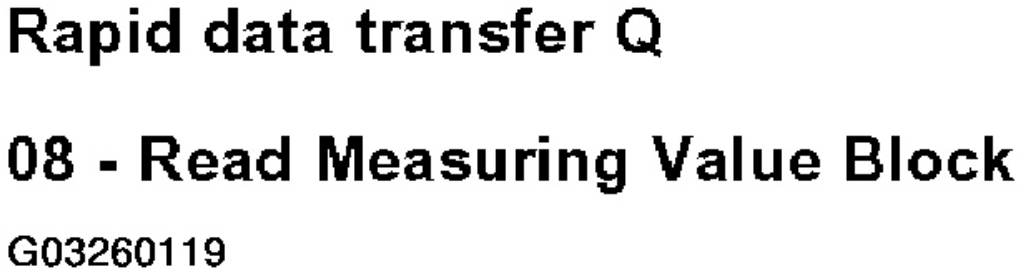


Fig. 220: VAG 1551 Scan Tool Display - Read Measuring Value Block (2 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Using the Scan Tool (ST) button pad, enter the required display group number (following example shows display group 001).
- Press -Q- button to confirm input.

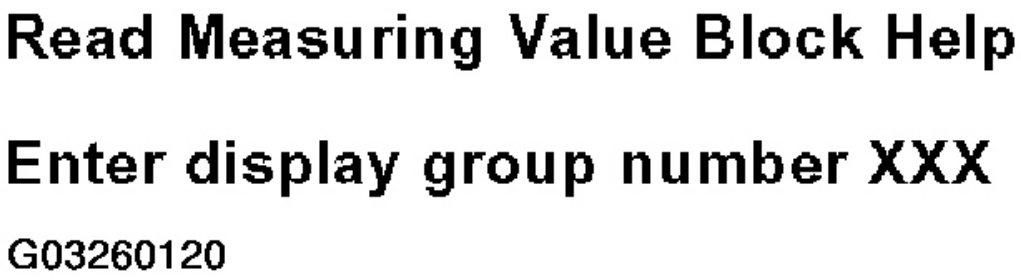


Fig. 221: VAG 1551 Scan Tool Display - Read Measuring Value Block (3 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display: (1...4 - Display fields)

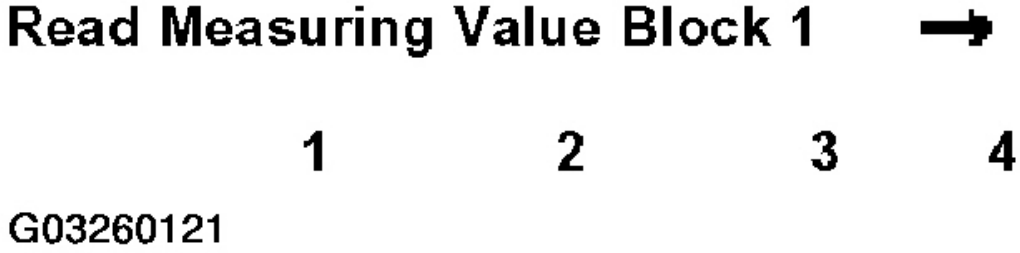


Fig. 222: VAG 1551 Scan Tool Display - Read Measuring Value Block (4 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE: Interpreting display groups and evaluating measured values in individual display fields. See DISPLAY GROUPS, INTERPRETING .
With the printer switched on, the information on the display is printed out. To easily change between display groups, proceed as follows:

DISPLAY GROUP VAG 1551 AND 1552 CHART

Display group	VAG1551	VAG 1552
Higher	Press button 3	Press --> button
Lower	Press button 1	Press --> button
Skip	Press button C	Press button C

- Displayed after pressing -C- button.

Indicated on display:

- Enter alternate display group number as needed, See tables beginning. See **DISPLAY GROUPS, INTERPRETING** .

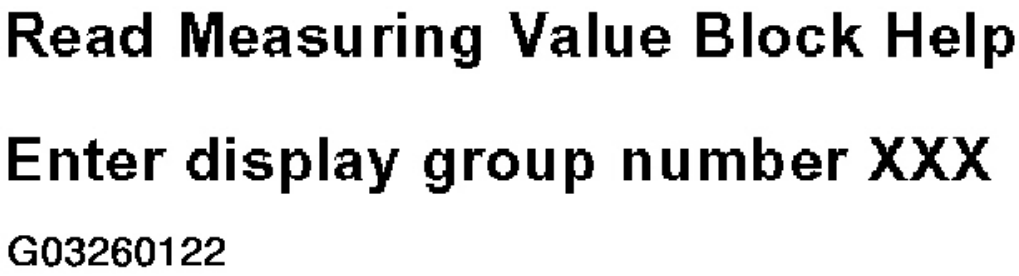


Fig. 223: VAG 1551 Scan Tool Display - Read Measuring Value Block (5 Of 5)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE:

- **Display fields always show actual values transmitted from senders and sensors. However, instrument cluster display values can differ from those in the display fields due to internal filtering.**
- **Other display groups are possible, but are not required for On Board Diagnostic program!**

The condition of the databus function for control modules which are connected to the power-train databus is displayed in display groups 125 and 126.

The display fields for control modules which are not installed remain empty.

DISPLAY GROUPS, INTERPRETING

Display group 125

NOTE:

- **Display fields in display groups 125 and 126 provide the CAN Data Bus function status codes of various control modules connected to the vehicle CAN Data Bus network.**
- **If a vehicle is not equipped with control module(s) or components listed in the following display groups, the applicable display field remains blank.**

- **Display fields may vary depending on instrument cluster manufacturer (VDO or MMO).**

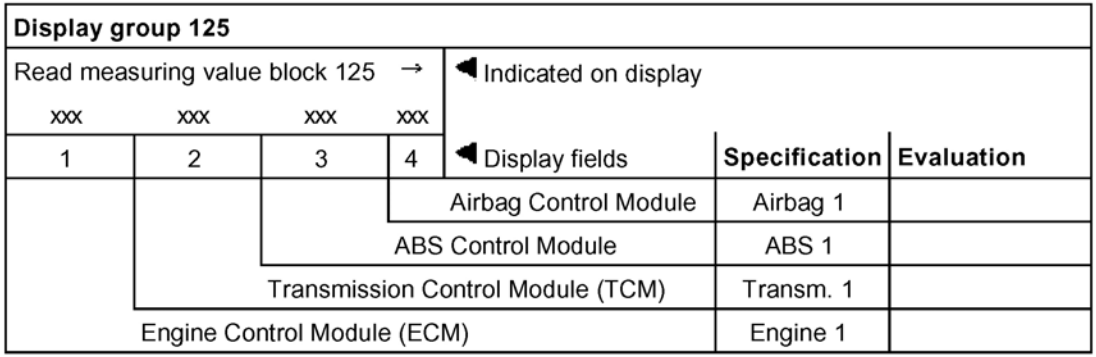


Fig. 224: Display Group 125
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE: For evaluation of Fig. 224 , see Evaluating display group number 125 .

Evaluating display group number 125

EVALUATING DISPLAY GROUP NUMBER 125

Display field	Description	Display	Corrective actions
1	Engine Control Module (ECM) -J220-	Engine 1 = OK Data transfer from ECM over CAN Data Bus network OK Engine 0 = Not OK No data transfer from Engine Control Module (ECM) over CAN Data Bus network	No data transfer from CM over CAN Data Bus network (code 0): • Check wiring and connections for CAN Data Bus to applicable control module using wiring diagram
2	Transmission Control Module (TCM) -J217-	Transm. 1 = OK Data transfer from TCM over CAN Data Bus network OK Transm. 0 = not OK No data transfer from TCM over CAN Data Bus network	
3	ABS Control Module -J213-	ABS 1 = OK Data transfer from ABS control module over CAN	No data transfer from CM over CAN Data Bus network (code 0):

		Data Bus network OK ABS 0 = not OK No data transfer from ABS control module over CAN Data Bus network	• Check wiring and connections for CAN Data Bus to applicable control module using wiring diagram
4	Airbag Control Module -J234-	Airbag 1 = OK Data transfer from airbag control module over CAN Data Bus network OK Airbag 0 = not OK, No data transfer from airbag control module over CAN Data Bus network	

Display group 126

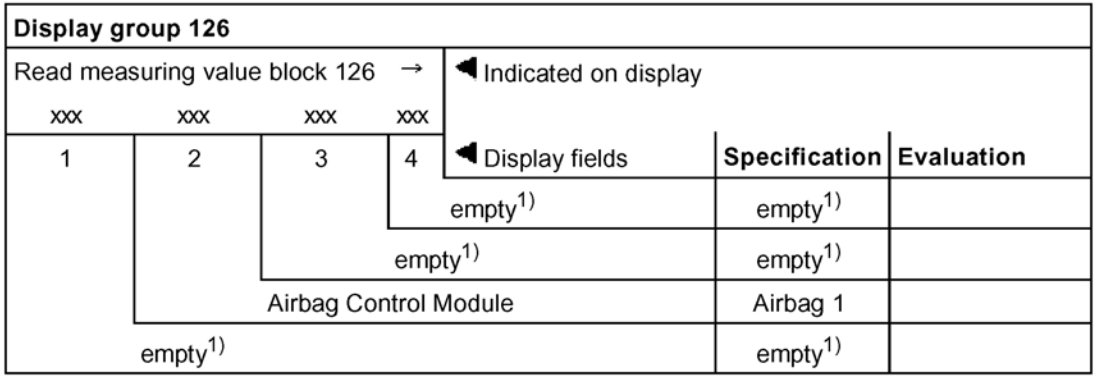


Fig. 225: Display Group 126
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE: For evaluation of Fig. 225 , see Evaluating display group number 126 .

Evaluating display group number 126

EVALUATING DISPLAY GROUP NUMBER 126

Display field	Description	Display	Corrective actions
2	Airbag control module -J234-	Airbag 1 = OK Data transfer from airbag control module over CAN Data Bus network OK Airbag 0 = not OK	No data transfer from sensor or control module over CAN Data Bus network (code 0): • Check wiring and connections for

		No data transfer from airbag control module over CAN Data Bus network	CAN Data Bus to airbag control module using wiring diagram

ANTI-THEFT IMMOBILIZER, ON BOARD DIAGNOSTIC (OBD)

GENERAL INFORMATION

NOTE: All anti-theft immobilizer OBD program functions must be performed using the VAS 5051 Vehicle Diagnostic Testing and Information System in operating mode "Guided Fault Finding" or "Vehicle Self-Diagnosis".

Anti-theft immobilizer system/component description and repairs: See **ANTI-THEFT IMMOBILIZER** .

RADIO SYSTEM "PREMIUM V" AND "PREMIUM V - MONSOON", ON BOARD DIAGNOSTIC (OBD)

GENERAL INFORMATION

Radio system "Premium V" is installed from start of production.

Radio system "Premium V - Monsoon" is installed as optional equipment from 10.00 production.

Before troubleshooting or servicing, technicians must be familiar with the functions and operation specifics of the applicable standard or optional radio system. Always read the radio owner's manual and review all radio, tape player and CD changer functions.

The radio is controlled by an internal microprocessor with On Board Diagnostic (OBD) capability. If malfunctions occur in monitored components, Diagnostic Trouble Codes (DTC) will be stored in memory together with an indication of malfunction type. A maximum of 4 DTCs can be stored simultaneously.

Sporadic malfunctions (indicated in the readout by "SP") are automatically cancelled if not repeated in the next 50 engine starts.

Before performing any troubleshooting or inspection, always begin by checking for DTCs using the On Board Diagnostic (OBD) program. DTCs stored in memory are retrieved/checked with VAG 1551/1552 Scan Tools (ST) or VAS 5051 Vehicle Diagnostic Testing and Information System.

Notes on exchanging radio

- Do not disassemble radio.
- When the replacement of a malfunctioning radio is necessary, follow exchange part procedures.
- Complete the report form and return together with radio.
- Use the original packaging from the new radio when returning.

Additional information:

- Complaint/symptom based Technical Bulletins ("Service Fixes"):
- Technical Bulletins
- Radio system descriptions. See **Radio, "Premium V"** .

VAG 1551 SCAN TOOL (ST), CONNECTING, SELECTING FUNCTIONS & CHECKING CONTROL MODULE VERSIONS

NOTE: The following description deals only with the VAG 1551 scan tool.

Connecting VAG1551 scan tool and selecting functions

Requirements

- All fuses OK according to wiring diagram
- Battery (B+) voltage at least 9.0 V

Special tools and equipment

- VAG1551 Scan Tool (ST)
- VAG1551/3B adapter cable

Check control module version (function 01)

The Data Link Connector (DLC) is located under the instrument panel to the left.

- Connect VAG1551 scan tool using VAG1551/3B adapter cable.

Indicated on display. Operating modes 1 and 2 are displayed alternately.

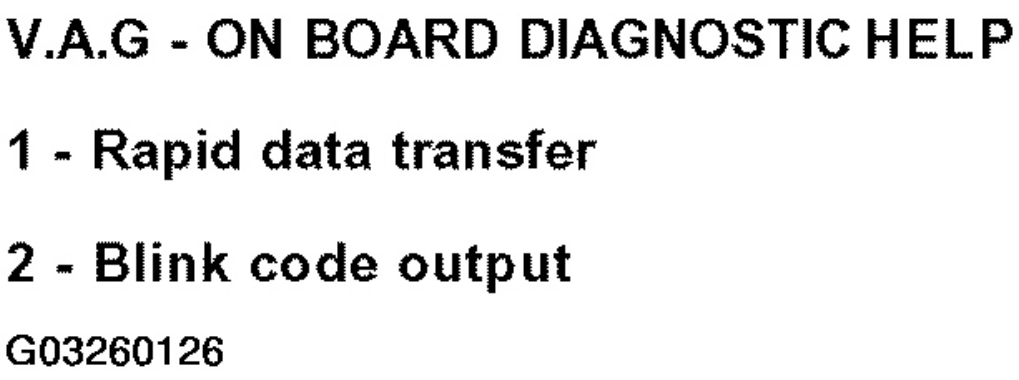


Fig. 1: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (1 Of 10)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **If the display remains blank, check VAG1551 voltage supply according to wiring diagram.**
- **Additional operating instructions can be printed out by pressing the HELP button.**
- **The --> button is used to advance through the program sequence.**

- **In "Rapid data transfer" operating mode 1, all vehicle control modules with OBD capability can be checked automatically using "Automatic Test Sequence" address word 00.**

- Switch ignition on.
- Switch printer on by pressing PRINT button (indicator lamp in button lights up).
- Press button -1- for "Rapid data transfer" mode.

Indicated on display

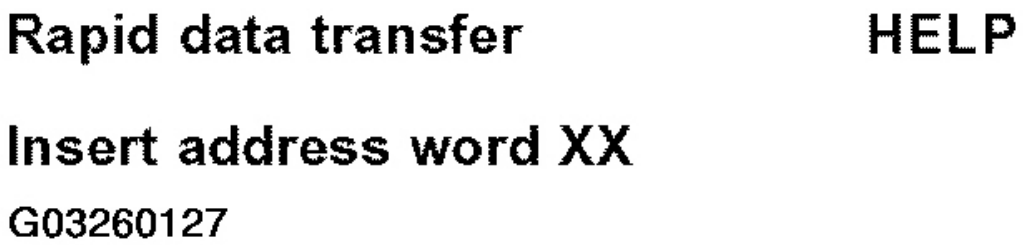


Fig. 2: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (2 Of 10)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press buttons -5- and -6- to insert "Radio" address word 56.

Indicated on display

Fig. 3: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (3 Of 10)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press -Q- button to confirm input.

Indicated on display

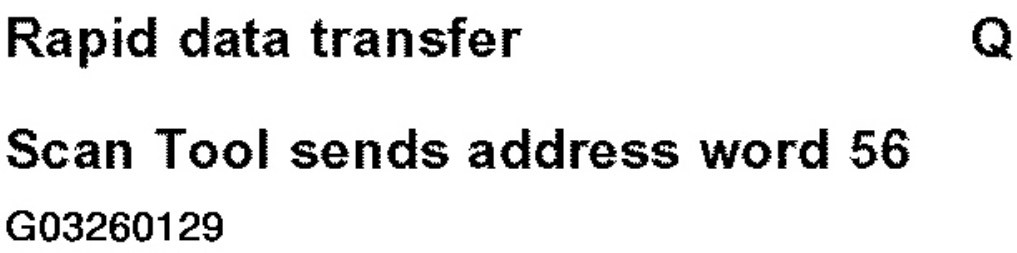


Fig. 4: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (4 Of 10)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Indicated on display

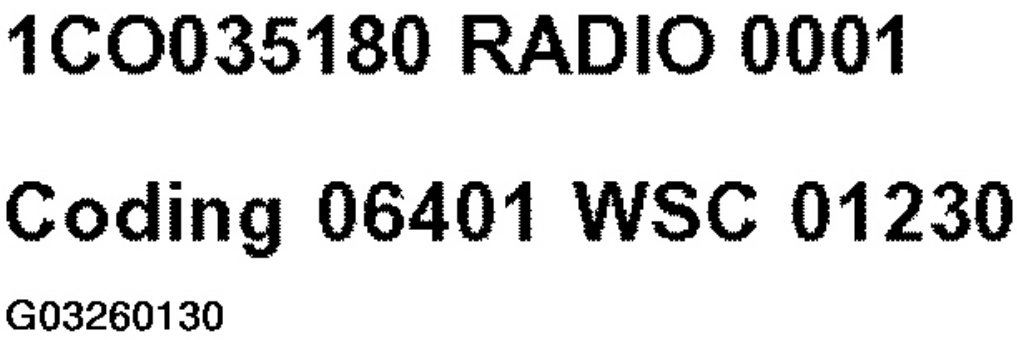


Fig. 5: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (5 Of 10)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- 1CO035180: Part No. of control module
- RADIO: Component designation
- 0001: Software version installed in radio
- Coding 06401: Example of a coding for radio "New Beetle"

- WSC 01230: Dealership number. Will be automatically stored in control module when entering the system.

CAUTION:
- **Part numbers are listed here for reference only.**
- **Always check with your Parts department for the latest information.**

- Press --> button.

Indicated on radio display during OBD

Fig. 6: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (6 Of 10)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

If indicated on display

Fig. 7: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (7 Of 10)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- By pressing HELP button, a list of possible malfunction causes is printed out.
- After repairing malfunction, insert address word 56
- Press -Q- button to confirm input.

Indicated on display. For different codings, see **CODE CONTROL MODULE (FUNCTION 07)** .

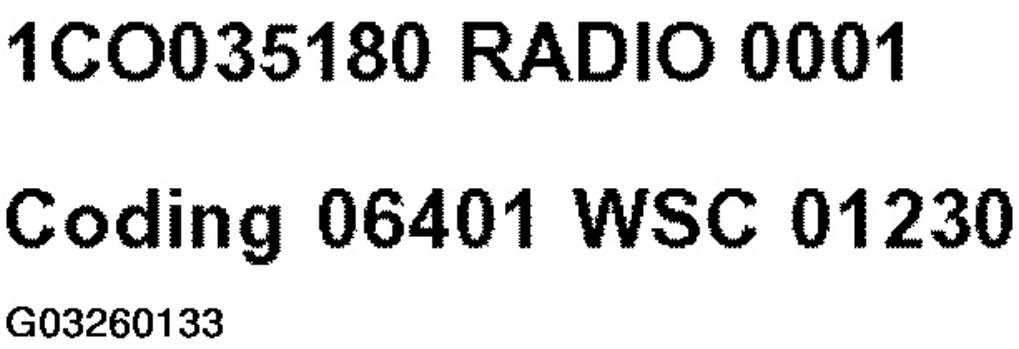


Fig. 8: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (8 Of 10)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press --> button.

Indicated on display

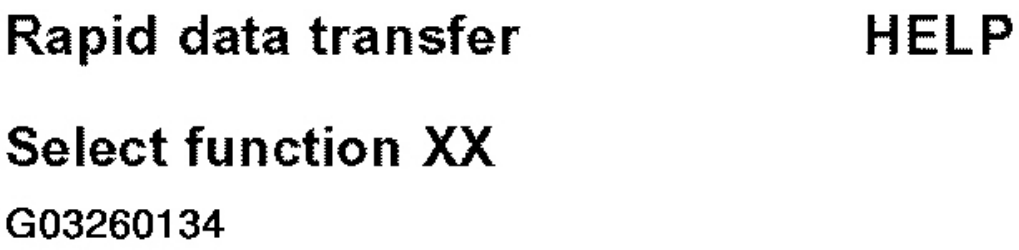


Fig. 9: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (9 Of 10)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press HELP button

- List of available functions is printed out, see **LIST OF AVAILABLE FUNCTIONS** .

List of available functions

AVAILABLE FUNCTIONS CHART

Function	Explanation	See
01	Check Control Module Versions	**CHECK CONTROL MODULE VERSION (FUNCTION 01)**
02	Check Diagnostic Trouble Code (DTC) memory	**DIAGNOSTIC TROUBLE CODE (DTC) MEMORY, CHECKING (FUNCTION 02)**
03	Output Diagnostic Test Mode (DTM)	**OUTPUT DIAGNOSTIC TEST MODE (DTM) (FUNCTION 03)**
05	Erase DTC Memory	**DIAGNOSTIC TROUBLE CODE (DTC) MEMORY, ERASING (FUNCTION 05)**
06	End Output	**END OUTPUT (FUNCTION 06)**
07	Code Control Module	**OUTPUT DIAGNOSTIC TEST MODE (DTM) (FUNCTION 03)**
08	Read Measuring Value Block	**READ MEASURING VALUE BLOCK (FUNCTION 08)** , EVALUATING DISPLAY GROUP NUMBER 050.

NOTE:

- **Do not select further functions, which can be printed out after pressing HELP button.**
- **After function is completed, VAG 1551 returns to following start position.**

Indicated on display

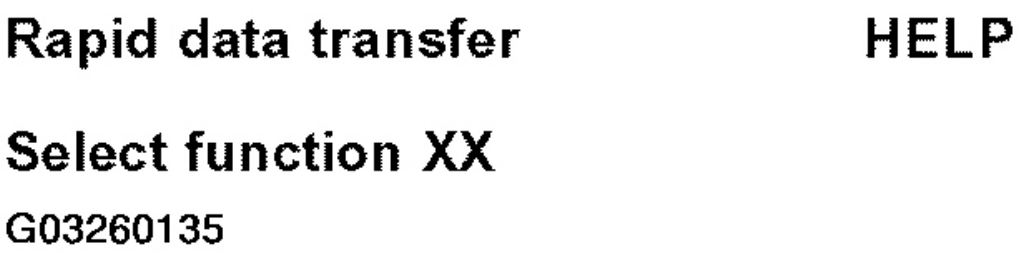


Fig. 10: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (10 Of 10)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

To correctly diagnose all malfunctions, output Diagnostic Test Mode (DTM) must be carried out before checking DTC memory.

DIAGNOSTIC TROUBLE CODE (DTC) MEMORY, CHECKING (FUNCTION 02)

NOTE: The displayed DTC information is updated only when initiating OBD or with "Erase DTC Memory" function 05.

- Switch printer on by pressing PRINT button (indicator lamp in button lights up).

Indicated on display

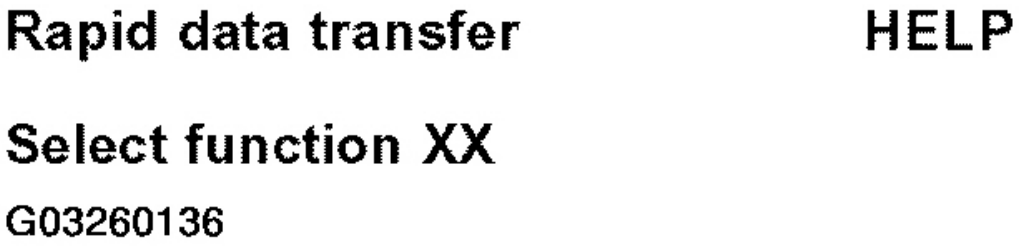


Fig. 11: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory (1 Of 5)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press buttons -0- and -2- to select function 02 "Check DTC Memory".

Indicated on display

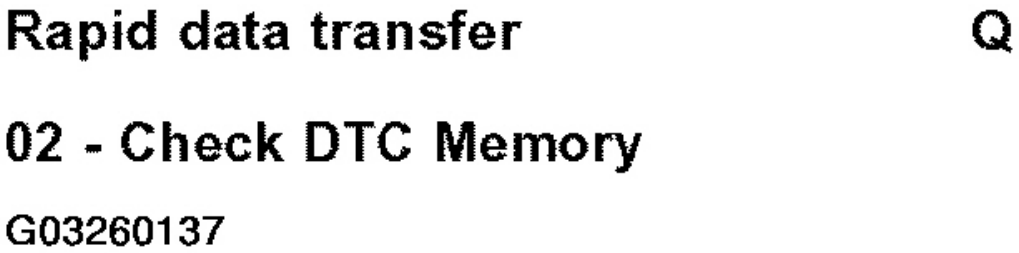


Fig. 12: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory (2 Of 5)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press -Q- button to confirm input.

The number of stored DTCs appears on the display.

Fig. 13: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory (3 Of 5)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Stored DTCs are displayed and printed out one after another.

- Check print-out against DTC table and repair all malfunction as necessary, See **DIAGNOSTIC TROUBLE CODE (DTC) TABLE** .

If "No DTC recognized" is displayed the program will return to initial position after pressing --> button.

Fig. 14: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory (4 Of 5)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Indicated on display

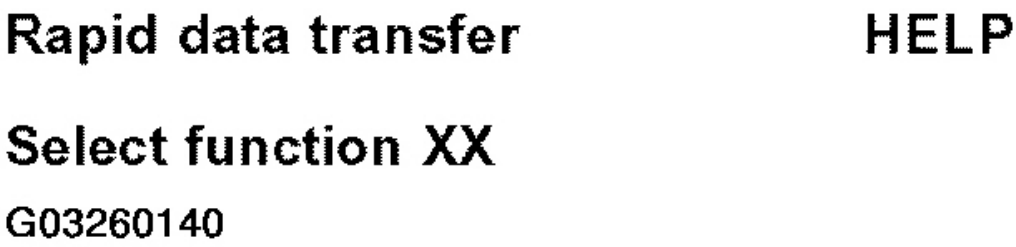


Fig. 15: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory (5 Of 5)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

If something else is displayed:

See *Scan Tool operating instructions*

- End output (function 06), See **END OUTPUT (FUNCTION 06)** .
- Switch ignition off and disconnect VAG1551 scan tool.

DIAGNOSTIC TROUBLE CODE (DTC) TABLE

NOTE:

- **The following table lists all the malfunctions with the corresponding 5-digit code numbers that can be recognized by the radio and printed out byVAG1551 scan tool.**
- **DTC codes appear only on print-out.**
- **Before replacing components, check wiring and connections to these components as well as Ground (GND) connections, according to wiring diagram.**
- **When a malfunction has been repaired, DTC memory must always be checked again with VAG1551 scan tool and erased.**

DIAGNOSTIC TROUBLE CODE (DTC) - PREMIUM V AND PREMIUM V - MONSOON

DTC VAG 1551 scan tool display	Possible cause	Possible effects	Corrective action
00668 Battery Positive Voltage (B+) Term. 30 • Signal too low	• Battery voltage below 9.5 V • Battery insufficiently charged	• Poor radio performance or radio inoperative • Poor radio	• Charge battery and if necessary check for malfunctions. • Turn off all unnecessary electrical

	• Battery voltage below 9.5 V • Too many consumers on	performance or radio inoperative	consumers.
00850 Control Output Active, Radio Amplifier • Short circuit to ground	Only for vehicles with sound systems • Short circuit between connector -T20- terminal 6 and ground	• Sound system inoperative	• Check for short circuit to ground according to wiring diagram.
00852 Loudspeaker front • Short circuit • Open circuit	• Short circuit to ground in wiring to one front loudspeaker • Open circuit in wiring to one front bass loudspeaker	• One front loudspeaker is inoperative • One front bass loudspeaker is inoperative	Short circuit between wiring is only recognized during Output Diagnostic Test Mode (DTM). • Check wiring according to wiring diagram. • Check wiring according to wiring diagram.
00853 Loudspeaker rear • Short circuit • Open circuit	• Short circuit to ground to one rear loudspeaker • Open circuit in wiring to one rear loudspeaker	• One rear loudspeaker is inoperative • One rear loudspeaker inoperative	Short circuit between wiring is only recognized during output Diagnostic Test Mode (DTM). • Check wiring according to wiring diagram. • Check wiring according to wiring diagram.
00855 Connection to CD Changer • No communication	• Open circuit to CD-changer	• CD-changer inoperative	• Check wiring according to wiring diagram.
00856 Radio Antenna • Short circuit • Open circuit	• Antenna cable not connected	• Poor radio performance or radio inoperative • Poor radio performance or	• Check antenna cable according to wiring diagram • Check antenna cable according to wiring diagram.

		radio inoperative	
01044 Control Module incorrectly coded	• Radio not coded	• This DTC cannot be erased. Radio must be coded.	
65535 Control Module Malfunctioning	• Radio faulty	• Replace radio.	

OUTPUT DIAGNOSTIC TEST MODE (DTM) (FUNCTION 03)

The output Diagnostic Test Mode (DTM) is part of the electrical check.

Output DTM checks for a short circuit between the speaker wires.

After output Diagnostic Test Mode (DTM), check DTC memory.

Initiating output Diagnostic Test Mode

NOTE:

- **Output Diagnostic Test Mode (DTM) cannot be initiated, or will be interrupted if engine is running or vehicle is moving.**
- **The -C- button can be used to exit the test sequence at any time.**

- Connect VAG1551 scan tool, select "Rapid data transfer" operating mode 1, switch ignition on and enter "Radio" address word 56.

Indicated on display

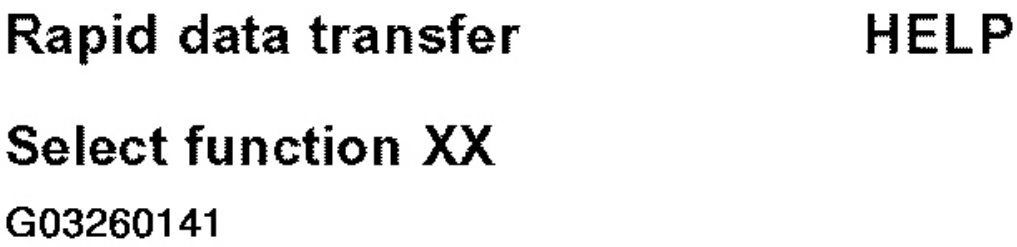


Fig. 16: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode (1 Of 8)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press buttons -0- and -3- to select function 03 "Output Diagnostic Test Mode".

Indicated on display

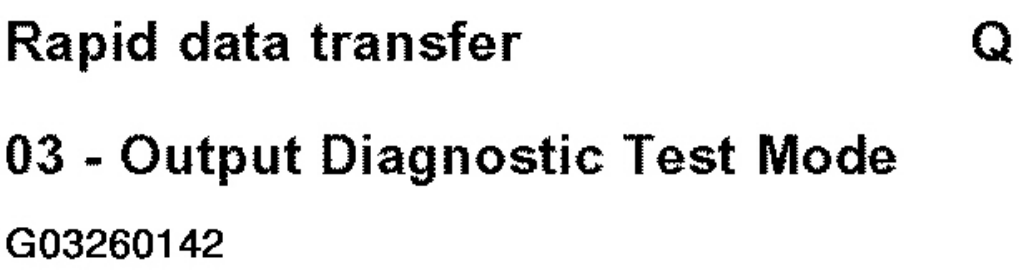


Fig. 17: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode (2 Of 8)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press -Q- button to confirm input.

Indicated on display

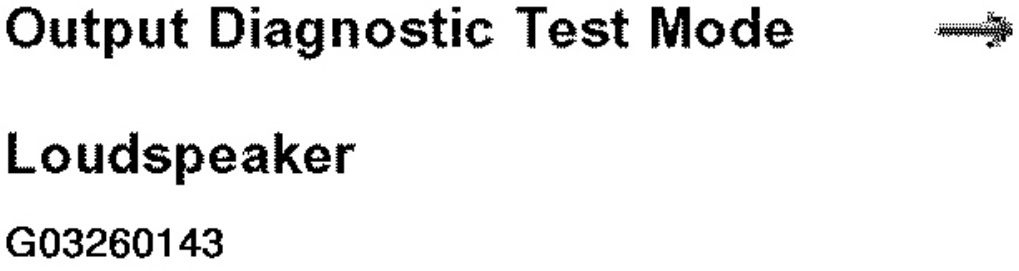


Fig. 18: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode (3 Of 8)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

A short loud tone is heard.

- Press -->button.

Indicated on display

Fig. 19: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode (4 Of 8)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press --> button.

Indicated on display

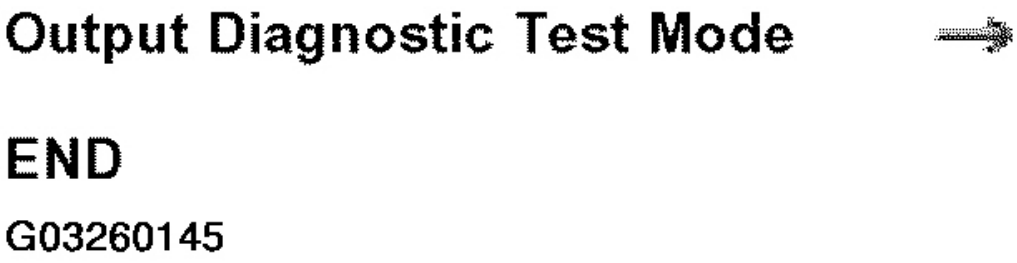


Fig. 20: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode (5 Of 8)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press --> button.

Indicated on display

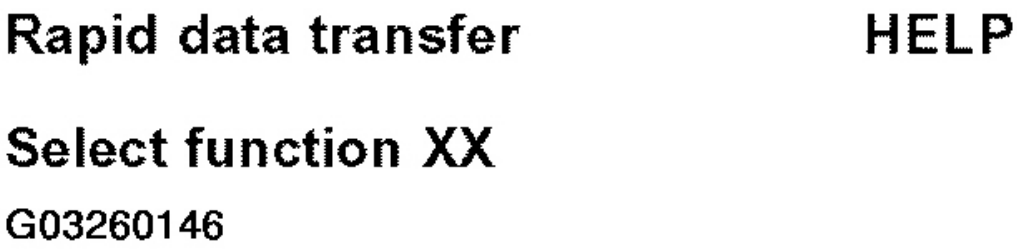


Fig. 21: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode (6 Of 8)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press buttons -0- and -6- to select function 06 "End Output".

Indicated on display

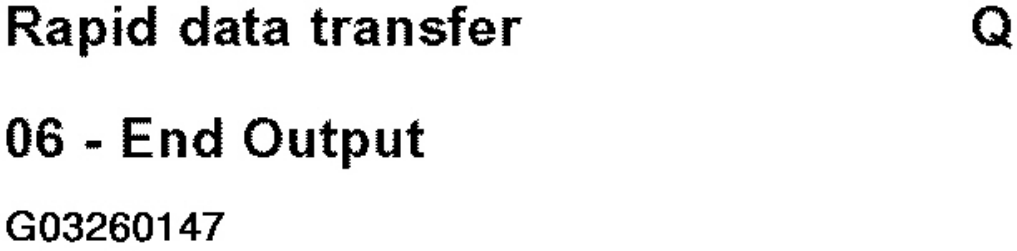


Fig. 22: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode (7 Of 8)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press -Q- button to confirm input.

Indicated on display

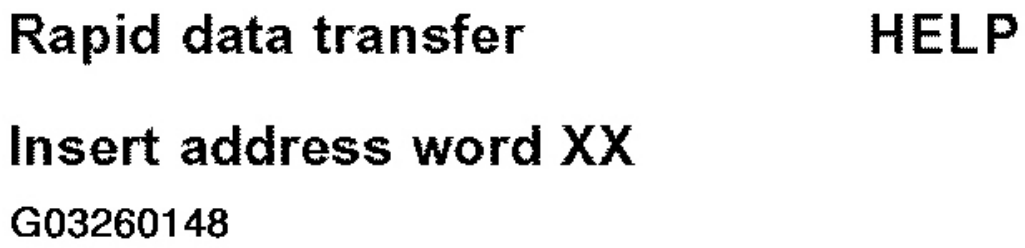


Fig. 23: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode (8 Of 8)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Scan tool returns to start of program sequence.

DIAGNOSTIC TROUBLE CODE (DTC) MEMORY, ERASING (FUNCTION 05)

NOTE: After erasing the DTC memory its contents will automatically be indicated. If the DTC memory cannot be erased, check DTC memory again and repair malfunctions.

Requirements

- DTC memory checked, See **DIAGNOSTIC TROUBLE CODE (DTC) MEMORY, CHECKING (FUNCTION 02)**
- All malfunctions repaired

(DTC) Memory, erasing (function 05)

After DTC memory has been successfully checked:

Indicated on display

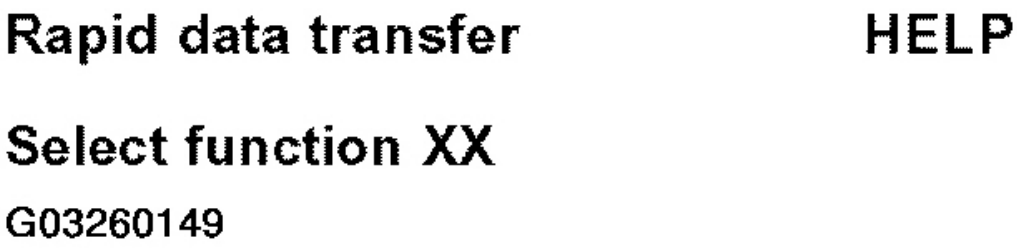


Fig. 24: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Erasing (1 Of 6)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press buttons -0- and -5- to select "Erase DTC Memory" function 05.

Indicated on display

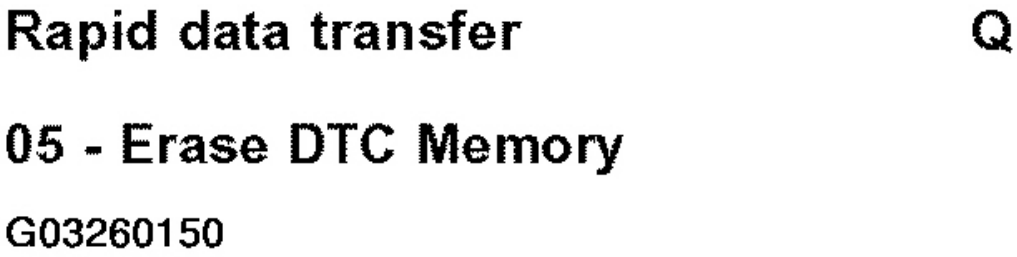


Fig. 25: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Erasing (2 Of 6)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press -Q- button to confirm input.

Indicated on display

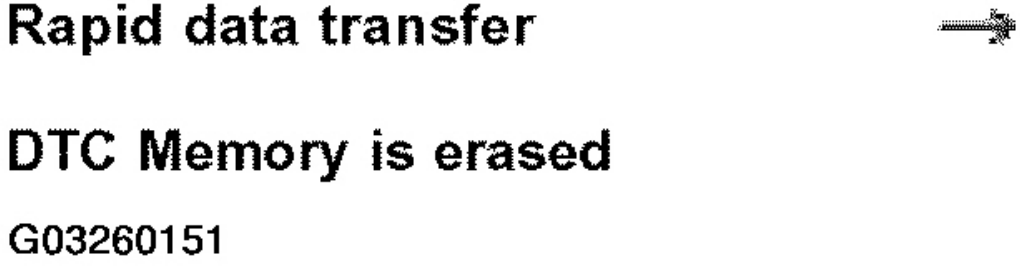


Fig. 26: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Erasing (3 Of 6)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

DTC memory is now erased.

- Press --> button.

Indicated on display

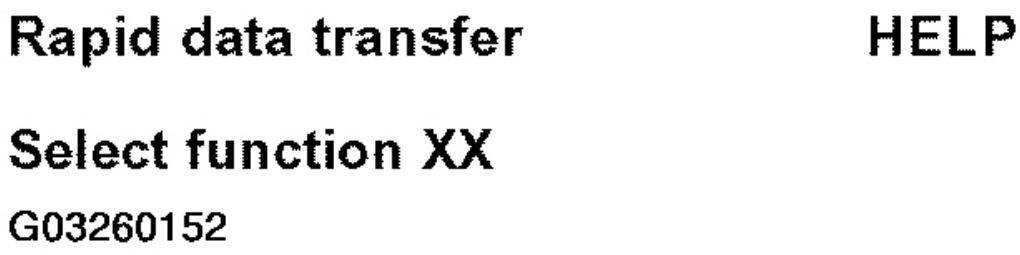


Fig. 27: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Erasing (4 Of 6)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **If this appears on the display, the test sequence is faulty.**

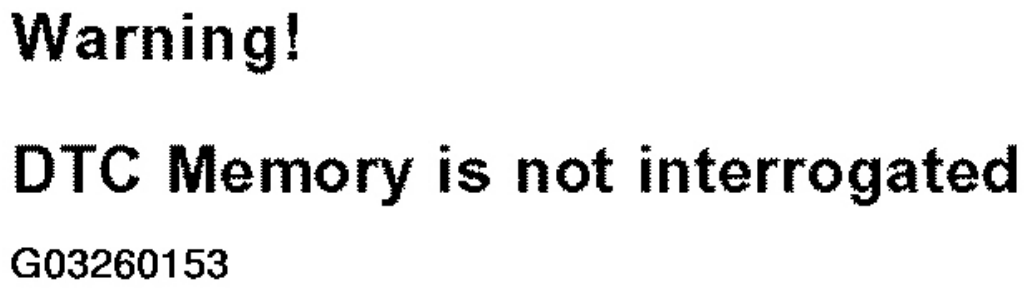


Fig. 28: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Erasing (5 Of 6)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- **If this appears on the display, the test sequence is faulty.**

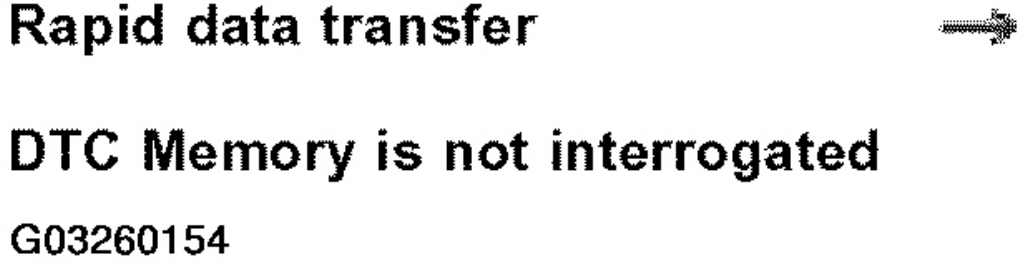


Fig. 29: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Erasing (6 Of 6)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- **Follow the test sequence exactly: First check DTC memory, if necessary repair malfunctions, then erase DTC memory.**

END OUTPUT (FUNCTION 06)

- Press buttons -0- and -6- to select function 06 "End Output".

Indicated on display

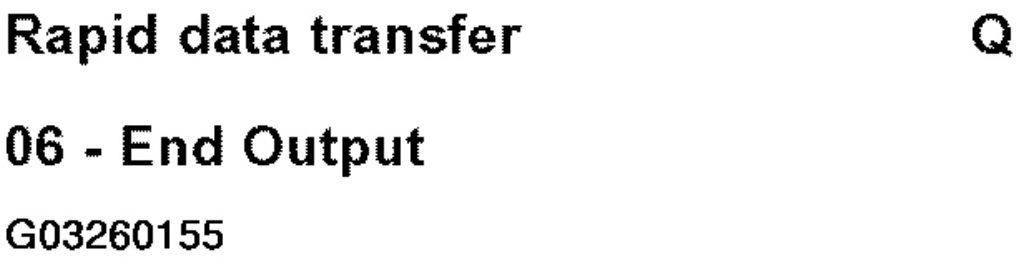


Fig. 30: VAG 1551 Scan Tool Display - End Output (1 Of 2)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press -Q- button to confirm input

Indicated on display

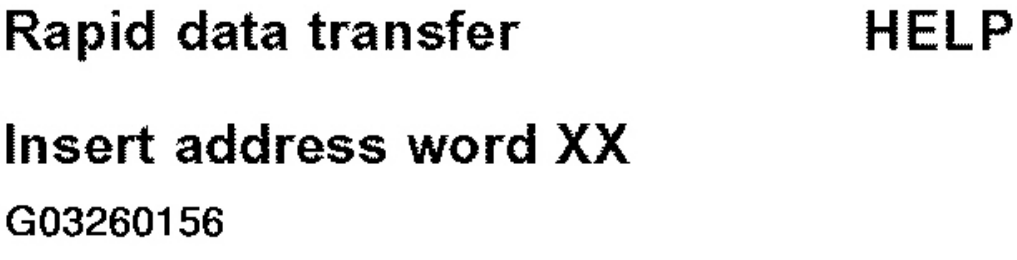


Fig. 31: VAG 1551 Scan Tool Display - End Output (2 Of 2)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Switch ignition off.
- Disconnect VAG1551 scan tool.

CODE CONTROL MODULE (FUNCTION 07)

By using the code control module function the radio can be coded as follows:

- VAG1551 scan tool connected ("Radio" address word 56); press --> button to advance program sequence

Coding

- Press buttons -0- and -7- to select function 07 "Code Control Module"..
- Press -Q- button to confirm input.
- Indicated on display

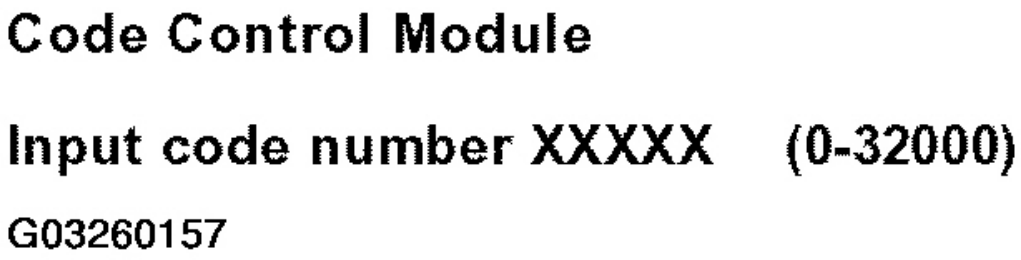


Fig. 32: VAG 1551 Scan Tool Display - Code Control Module (1 Of 7)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Radio coding (non-Monsoon)

Monsoon coding, See **RADIO CODING (MONSOON)**

- 06401- for vehicles without CD-changer (if CD-changer is installed later, radio code must be changed accordingly)
- 06403- for vehicles with CD-changer

Indicated on display

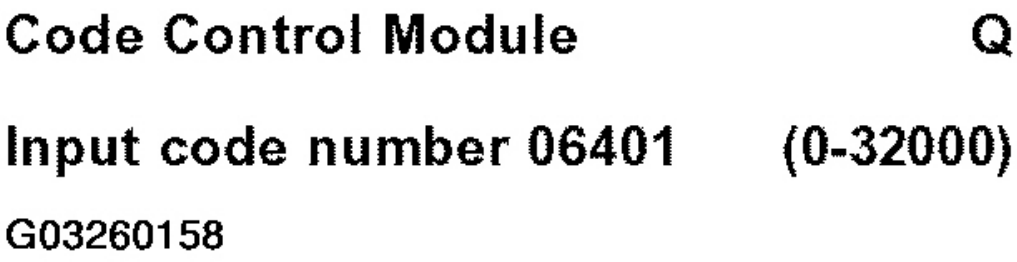


Fig. 33: VAG 1551 Scan Tool Display - Code Control Module (2 Of 7)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press -Q- button to confirm input.

Indicated on display

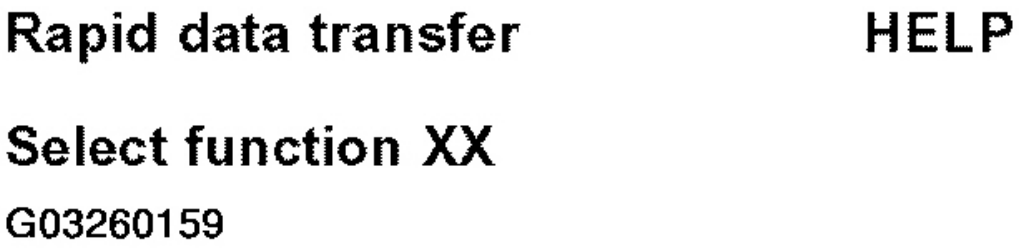


Fig. 34: VAG 1551 Scan Tool Display - Code Control Module (3 Of 7)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Radio coding (Monsoon)

- 06031- for New Beetle USA, no passive loudspeakers, Monsoon 2-door, active antenna and no CD changer
- 06033- for New Beetle USA, no passive loudspeakers, Monsoon 2-door, active antenna and CD changer

Indicated on display

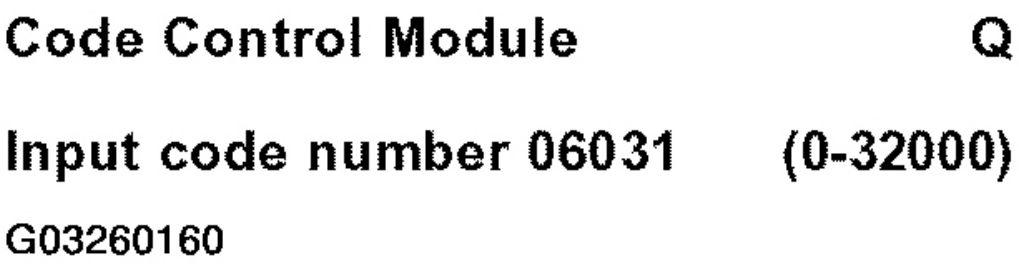


Fig. 35: VAG 1551 Scan Tool Display - Code Control Module (4 Of 7)

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press -Q- button to confirm input.

Indicated on display

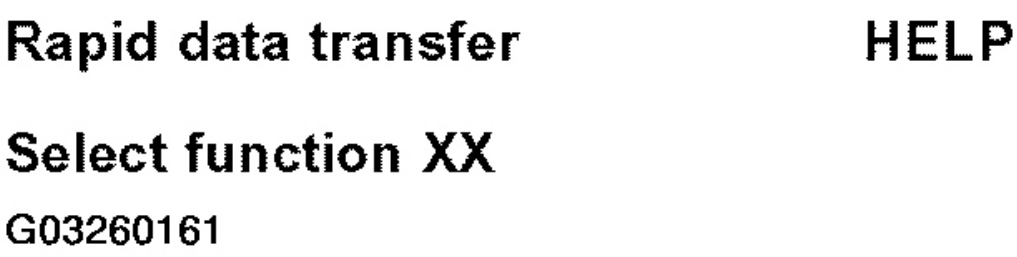


Fig. 36: VAG 1551 Scan Tool Display - Code Control Module (5 Of 7)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Continuation for all radios

End function:

- Press buttons -0- and -6- to select function 06 "End Output".
- End coding by pressing --> button.

Indicated on display

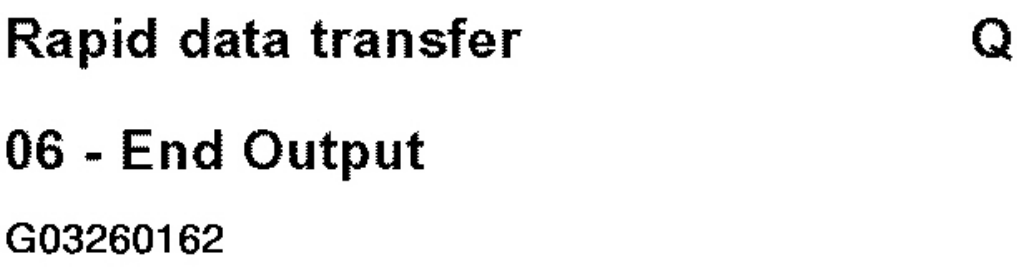


Fig. 37: VAG 1551 Scan Tool Display - Code Control Module (6 Of 7)

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press -Q- button to confirm input.

Indicated on display

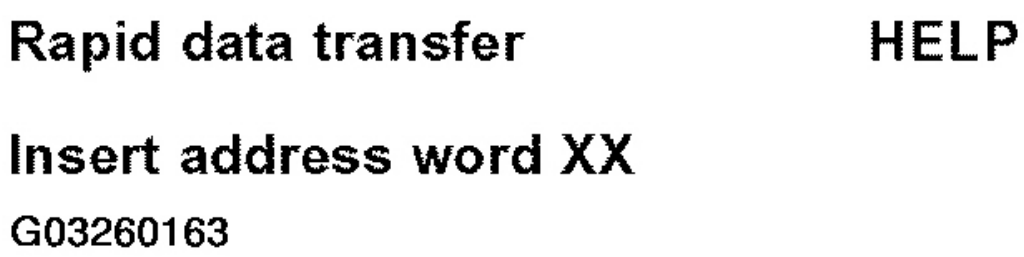


Fig. 38: VAG 1551 Scan Tool Display - Code Control Module (7 Of 7)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Scan tool returns to start of program sequence.

READ MEASURING VALUE BLOCK (FUNCTION 08)

6 display groups, with up to 4 display fields, can be displayed.

Requirement

- Connect VAG1551 scan tool, input address word 56 "Radio" and press --> button, until "Select function XX" appears on display.

Read Measuring Value Block

Indicated on display

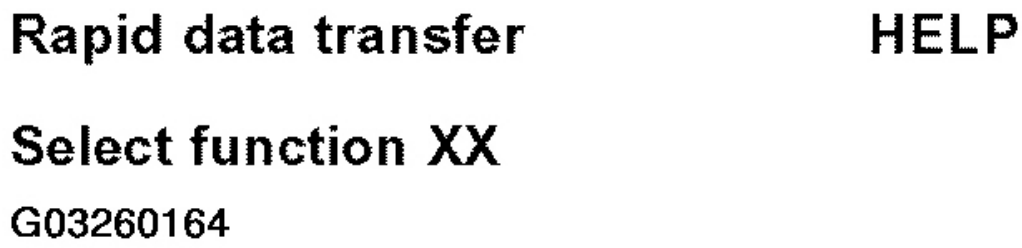


Fig. 39: VAG 1551 Scan Tool Display - Read Measuring Value Block (1 Of 4)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press buttons -0- and -8- to select function 08 "Read Measuring Value Block".

Indicated on display

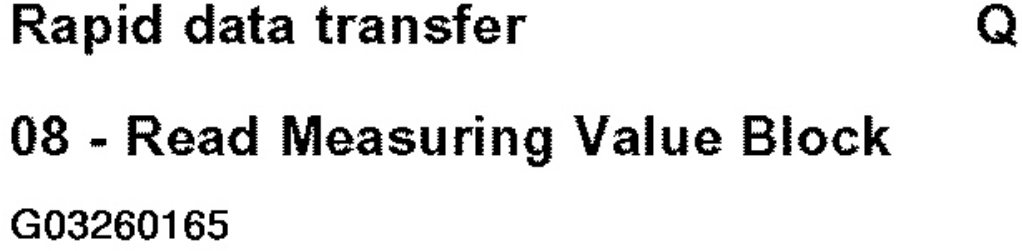


Fig. 40: VAG 1551 Scan Tool Display - Read Measuring Value Block (2 Of 4)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press -Q- button to confirm input.

Indicated on display

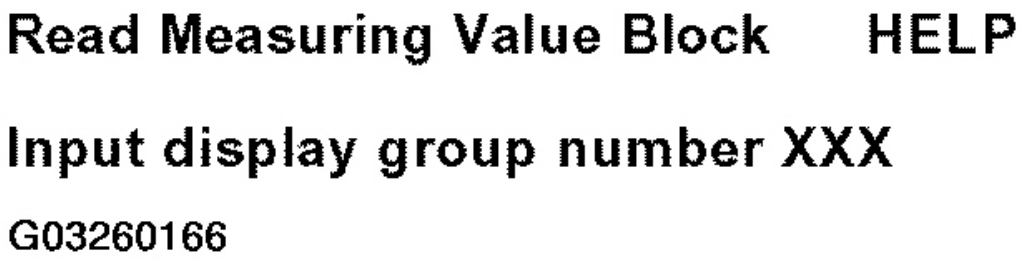


Fig. 41: VAG 1551 Scan Tool Display - Read Measuring Value Block (3 Of 4)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Input display group number from table, See **TABLE OF DISPLAY GROUP NUMBERS**
- Press -Q- button to confirm input.

Indicated on display

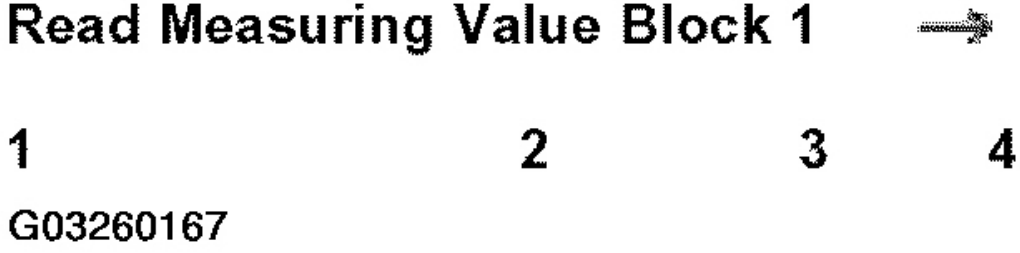


Fig. 42: VAG 1551 Scan Tool Display - Read Measuring Value Block (4 Of 4)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **Decoding figures in individual display fields, See TABLE OF DISPLAY GROUP NUMBERS .**
- **With printer switched on, display information will be printed-out.**
- **If specifications are attained in all display fields:**

- Press --> button.

Table of display group numbers

DISPLAY GROUP NUMBERS

Display group	Display field in display
001	1 Open 2 Power Supply voltage in V 3 Illumination in % 4 S-contact status (on or off) (Radio does not turn off)
002	1 Front speakers 2 OK, short circuit or open circuit 3 Rear speakers 4 OK, short circuit or open circuit
003	1 Passive or active 2 Antenna 3 OK, short circuit or open circuit 4 Open
004	1 Active amplifier output: 0 - OK 1 - Short circuit to ground 2 Open 3 Open 4 Open
005	1 CD-changer connection (even if CD-changer code is not set) 2 OK or not OK 3 Open 4 Open
006	1 External Display 2 not OK 3 Open 4 Open

NOTE: After ending function "Read Measuring Value Block" check DTC memory (function 02), See DIAGNOSTIC TROUBLE CODE (DTC) MEMORY, CHECKING (FUNCTION 02) .

RADIO SYSTEMS

GENERAL INFORMATION

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**

- **Switch ignition off and remove ignition key.**
- **Disconnect negative (-) battery terminal.**
- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified.**

Radio system Premium V" is installed from start of production, See **RADIO, "PREMIUM V"** .

Radio system "Premium V - Monsoon" is installed as optional equipment from 10.00, See **RADIO, "PREMIUM V - MONSOON"** .

Before troubleshooting or servicing, technicians must be familiar with the functions and operation specifics of the applicable standard or optional radio system. Always read the radio owner's manual and review all radio, tape player and CD changer functions.

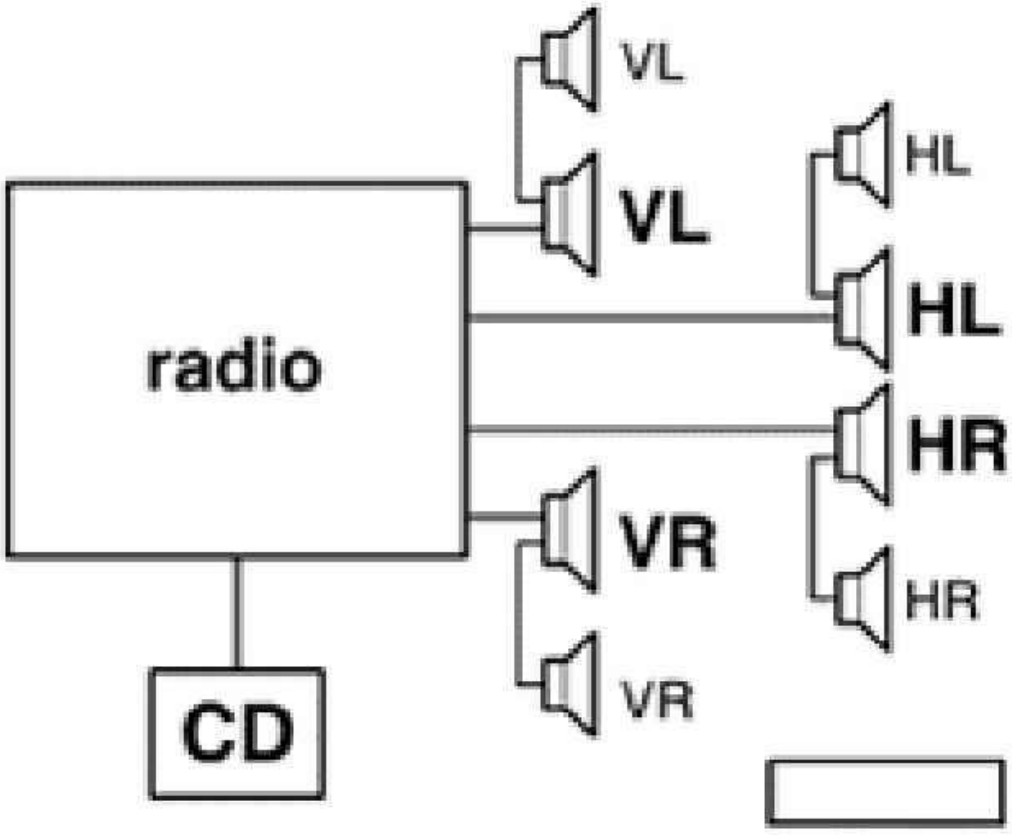
All radios are protected with anti-theft security coding (fixed code). See **ANTI-THEFT SECURITY CODE** . Also, See Radio owner's manual.

NOTE:

- **Only factory approved accessory radios and radio equipment (available from Volkswagen of America, Inc.) should be installed. This ensures proper installation and optimum function.**
- **When retrofitting components, carrying out diagnostics or repairs.**

RADIO, "PREMIUM V"

Installed from start of production.



VL = Left front

HL = Left rear

VR = Right front

HR = Right rear

G03260168

Fig. 43: Identifying Radio Speakers Position
Courtesy of VOLKSWAGEN UNITED STATES, INC.

The radio system consists of the receiver/tape unit and speakers located in the front doors and rear side panels.

A 168 mm low-range/bass speaker is located in the lower portion of each front door and rear side panel.

High range/treble speakers (domed tweeters) are installed in each A-pillar.

A CD changer is available as optional equipment.

CD Changer Locations:

- through 07.02 production: in luggage compartment, left.
- from 08.02 production: in center console under armrest.

The system uses an amplified roof mounted antenna, See **ROOF MOUNTED ANTENNA, ASSEMBLY** .

Radio system, On Board Diagnostic (OBD)

"Premium V" radio systems have On Board Diagnostic (OBD) capabilities, See **Radio system "Premium V" and "Premium V - Monsoon", On Board Diagnostic (OBD)** .

CD Changer

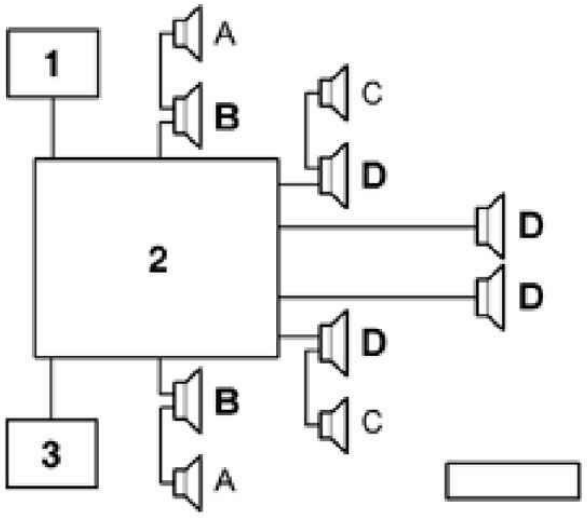
The optional CD changer wiring and mounting is pre-installed in production. Applications:

- m.y. 1998:, See **CD CHANGER - M.Y. 1988, INSTALLING** .
- m.y. 1999 through 07.02 production:, See **CD CHANGER - M.Y. 1999 THROUGH 07.02 PRODUCTION, INSTALLING** .
- from 08.02 production:, See **CD CHANGER - FROM 08.02 PRODUCTION, INSTALLING AND REMOVING** .

RADIO, "PREMIUM V - MONSOON"

Installed as optional equipment from 10.00 production.

Component overview:



1 - Amplifier

2 - Radio Monsoon

3 - CD player

A - Domed treble loudspeaker in inner plenum chamber cover

B - Bass loudspeaker in inner plenum chamber cover

C - Domed treble loudspeaker in A-pillar trim

D - Bass loudspeaker, front and rear in side panel trim

G03260169

Fig. 44: Identifying Radio Premium V - Monsoon Position
Courtesy of VOLKSWAGEN UNITED STATES, INC.

The radio system consists of the receiver/tape unit supplemented by a separate high power amplifier mounted in the luggage compartment.

High power handling speakers specifically designed for the "Monsoon" system are located in the front and rear doors as with "Premium V".

A CD changer is available as optional equipment.

CD Changer Locations:

- through 07.02 production: in luggage compartment, left.
- from 08.02 production: in center console under armrest.

The system uses an amplified roof mounted antenna, See **ROOF MOUNTED ANTENNA, ASSEMBLY** .

Radio system, On Board Diagnostic (OBD)

The optional "Premium V- Monsoon" radio systems have On Board Diagnostic (OBD) capabilities, See **Radio system "Premium V" and "Premium V - Monsoon", On Board Diagnostic (OBD)** .

CD Changer

The optional CD changer wiring and mounting is pre-installed in production. Applications:

- m.y. 1999 through 07.02 production, See **CD CHANGER - M.Y. 1999 THROUGH 07.02 PRODUCTION, INSTALLING** .
- from 08.02 production:, See **CD CHANGER - FROM 08.02 PRODUCTION, INSTALLING AND REMOVING** .

RADIO MULTI-PIN CONNECTOR ASSIGNMENTS, "PREMIUM V" (INCL. MONSOON)

Terminal assignment of multi-pin connectors I, II, III at rear of radio

Multi-pin connector I, -T20-, consists of 3 separate connector parts

NOTE: The following list refers to items in Fig. 45 .

1. Line out left rear
2. Line out right rear
3. Ground (GND)
4. Line out left front
5. Line out right front
6. Switched positive (B+ out) for amplifier

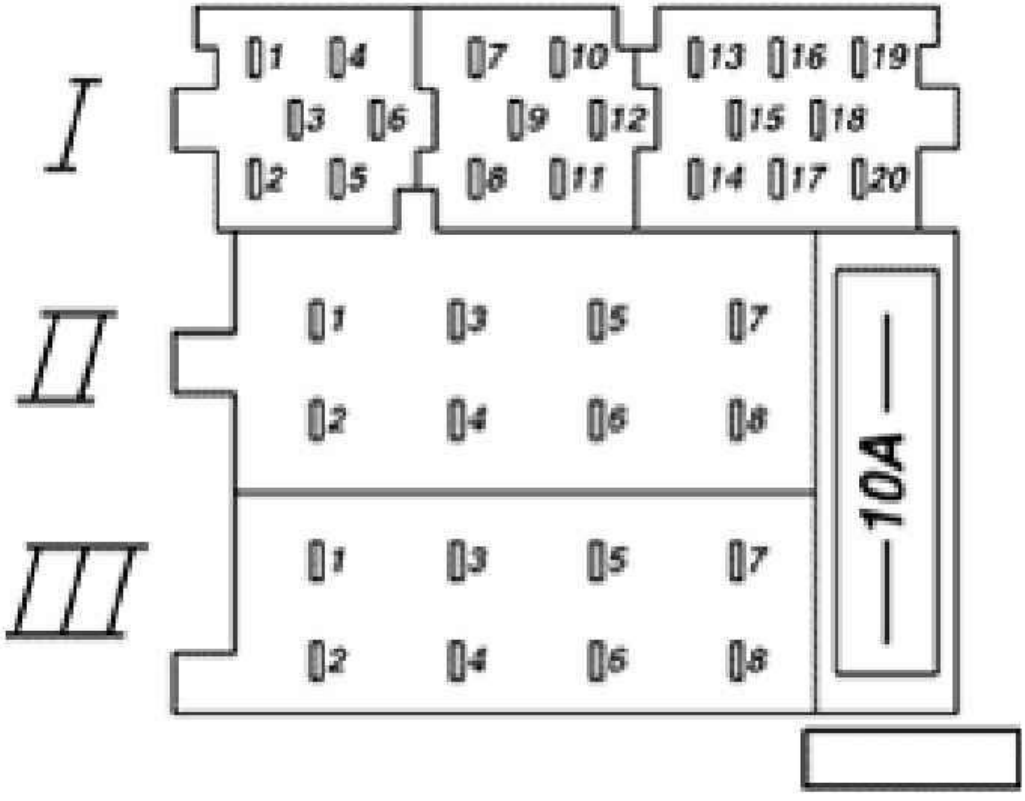
   Multi-pin connector I, -T20- part 2, green (Where applicable)

7. Open
8. CLOCK
9. DATA
10. ENA

11. Remote control (serial input)
12. Open

Multi-pin connector I, -T20- part 3, blue

13. CD changer- DATA IN
14. CD changer - DATA OUT
15. CD changer- CLOCK
16. CD changer - Positive (B+) supply
17. CD changer - Control signal
18. CD changer - Ground (GND) supply
19. CD changer - Line out, left
20. CD changer - Line out, right



G03260170

Fig. 45: Identifying Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

"Premium V" Multi-pin connector II, -T8a-, 8-pin, brown

NOTE: The following list refers to items in Fig. 45 .

1. Right rear loudspeaker +
2. Right rear loudspeaker -
3. Right front loudspeaker +
4. Right front loudspeaker -
5. Left front loudspeaker +
6. Left front loudspeaker -
7. Left rear loudspeaker +
8. Left rear loudspeaker -

"Premium V - Monsoon" Multi-pin connector II, -T8a-, 8-pin, brown

NOTE: The following list refers to items in Fig. 45 .

1. Amplifier + right rear speaker signal
2. Amplifier - right rear speaker signal
3. Amplifier + right front speaker signal
4. Amplifier - right front speaker signal
5. Amplifier + left front speaker signal
6. Amplifier - left front speaker signal
7. Amplifier + left rear speaker signal
8. Amplifier - left rear speaker signal

Multi-pin connector III, -T8-, 8-pin, black

NOTE: The following list refers to items in Fig. 45 .

1. Signal for anti-theft alarm system
2. Open
3. Data Link Connector (DLC) K wire
4. Ignition switch -S- contact
5. Positive (B+) supply, terminal 30 (control input for "SAFE" display/anti-theft)
6. Illumination, terminal 58b
7. Battery positive (B+) supply (terminal 30)

8. Ground (GND) supply

RADIO, REMOVING AND INSTALLING

GENERAL INFORMATION

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**
- **Disconnect negative (-) battery terminal.**
- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified.**

NOTE: If radio is exchanged or replaced

- **Anti-theft security code for new radio must be entered before use, See ANTI-THEFT SECURITY CODE . Be sure to advise customer of new security code.**
- **Confirm radio coding for sound system functions using On Board Diagnostic program function 07: "Code Control Module". See Code Control Module (function 07) .**
- **Radio sound system coding must be performed to account for presence of CD changer (if installed), Monsoon system (where applicable) and interior sound field differences between models.**

RADIO "PREMIUM V" & "PREMIUM V -MONSOON", REMOVING AND INSTALLING

NOTE: Before removing the radio obtain anti-theft security code from customer - vehicle papers. If the radio has been replaced, always activate the anti-theft coding, See ANTI-THEFT SECURITY CODE . Be sure to advise customer of new security code.

Special tools, testers and auxiliary items needed

Radio release tool T10057.

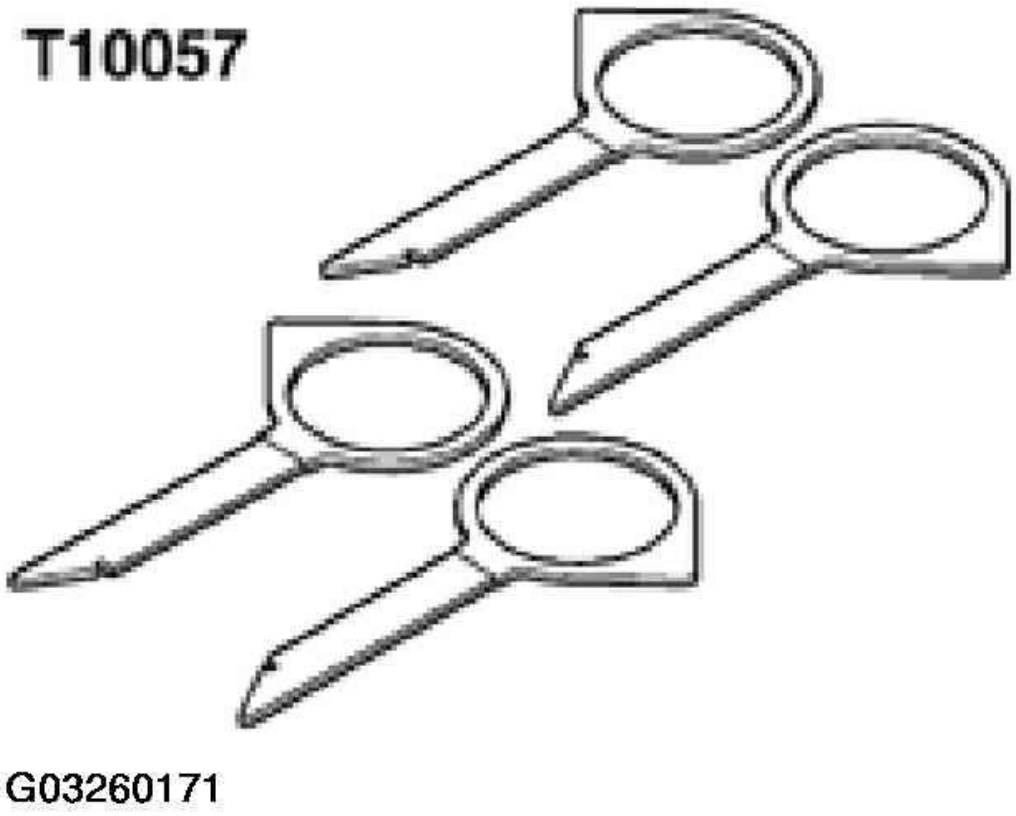


Fig. 46: Identifying Radio Release Tool T10057
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Removing

- Slide radio release tool T10057 into release slots -arrows- until they engage.
- Pull radio out of instrument panel using grip rings of release tools.

NOTE:

- **The radio release tool T10057 must not be pushed to the side or tilted.**
- **To remove the release tools from the radio the locating lugs on the side of the radio must be pressed inward.**

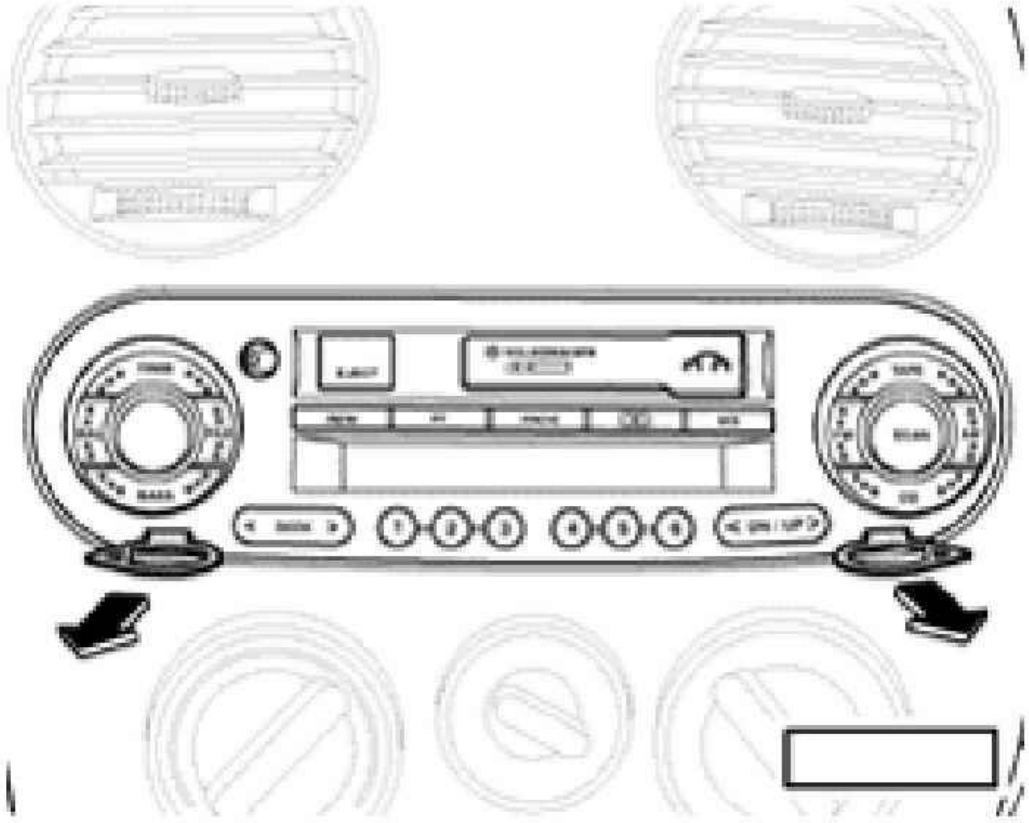


Fig. 47: Identifying Radio System
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical connections and antenna cable from rear of radio.

Installing

- Reconnect electrical connectors and antenna cable to radio.
- Slide radio level into instrument panel until it engages properly in assembly frame.
- Input anti-theft security code, See **ANTI-THEFT SECURITY CODE** .
- Confirm radio coding for sound system functions using On Board Diagnostic program function 07, "Code Control Module". See **Code Control Module (function 07)** .

NOTE: Radio sound system coding must be performed to account for presence of CD changer (if installed), Monsoon system (where applicable) and interior sound

field differences between models.

AMPLIFIER SYSTEM (MONSOON)

GENERAL INFORMATION

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**
- **Disconnect negative (-) battery terminal.**
- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified.**

The optional "Premium V - Monsoon" system consists of the "Premium" head unit supplemented by a separate high power amplifier mounted in the rear of the luggage compartment.

High power handling speakers specifically designed for the "Monsoon" system are located in the front and rear doors as with "Premium V".

Before troubleshooting or servicing, technicians must be familiar with the functions and operation specifics of the applicable standard or optional radio system. Always read the radio owner's manual and review all radio, tape player and CD changer functions.

Radio system, On Board Diagnostic (OBD)

The optional "Premium V- Monsoon" radio systems have On Board Diagnostic (OBD) capabilities, See **Radio system "Premium V" and "Premium V - Monsoon", On Board Diagnostic (OBD)** .

AMPLIFIER (MONSOON), REMOVING AND INSTALLING

The amplifier is located behind the lock carrier trim (left) in the rear of the luggage compartment.

Removing

- Remove lock carrier trim.

  See **INTERIOR TRIM** .

- Remove nuts -1-.

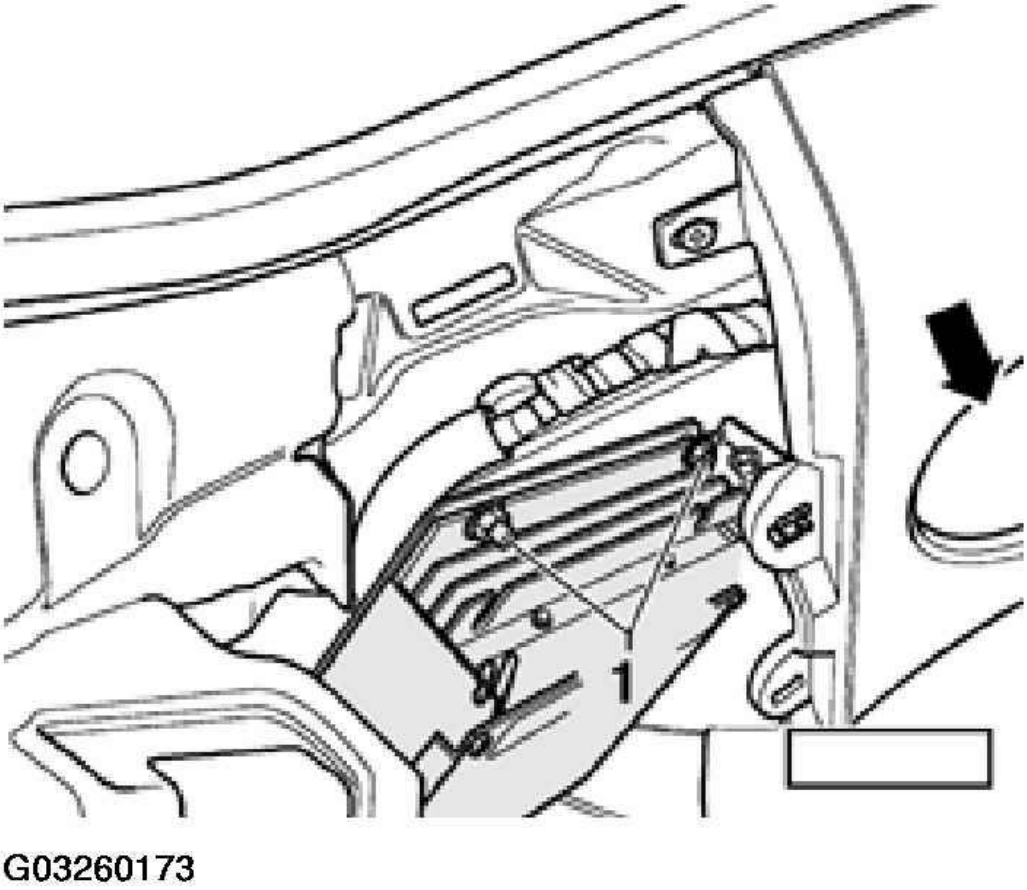


Fig. 48: Removing Nuts -1-
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove cover for assembly opening -arrow-.

NOTE: The assembly opening can be used to gain access to both multi-pin connectors and pull them off the amplifier.

- Disconnect both electrical connections.
- Slide amplifier up and out from bracket.

Installing

- Insert lower part of amplifier into bracket guide rail.
- Reconnect electrical connections.

- Install and tighten nuts -1- to 10 N.m (89 in lb).

Remaining installation in reverse order of removal.

Amplifier bracket, removing and installing

The bracket is secured by 3 nuts to the rear cross panel -arrows-, Tightening tor0que 10 N.m (89 in lb).

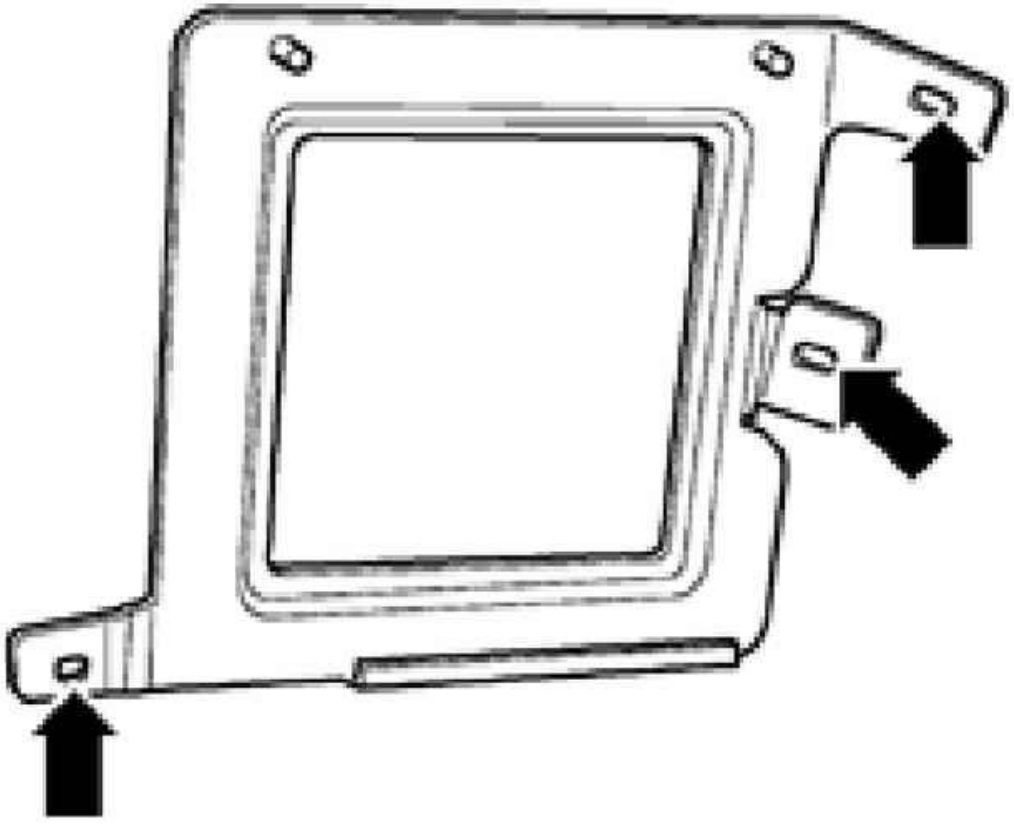


Fig. 49: Removing And Installing Amplifier Bracket
Courtesy of VOLKSWAGEN UNITED STATES, INC.

SPEAKER SYSTEM

GENERAL INFORMATION

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**
- **Disconnect negative (-) battery terminal.**
- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified.**

NOTE: Vehicles equipped with "Monsoon" sound systems include high power handling speakers specifically designed for the "Monsoon" system. Always confirm radio system installed and check with the parts department for proper replacement speaker applications.

SPEAKER SYSTEM, OVERVIEW

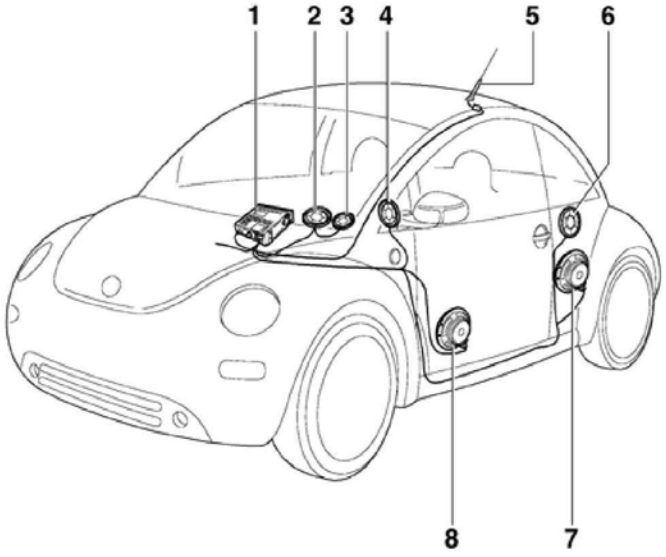
Speaker layout on left side of vehicle is shown. Right side speaker layout is identical.

NOTE: The following list refers to items in Fig. 50 .

1. **Radio**
   - In center console
   - Removing and installing, See **RADIO, REMOVING AND INSTALLING**
2. **Bass loudspeaker (with Monsoon only)**
   - In inner plenum under cover
   - Removing, See **DOMED TREBLE AND BASS LOUDSPEAKERS (MONSOON ONLY), REMOVING AND INSTALLING**
3. **Domed treble loudspeaker (with Monsoon only)**
   - In inner plenum under cover
   - Removing, See **DOMED TREBLE AND BASS LOUDSPEAKERS (MONSOON ONLY), REMOVING AND INSTALLING**
4. **Domed treble loudspeaker**
   - In A-pillar
   - Removing, See **DOMED TREBLE LOUDSPEAKERS, REMOVING AND INSTALLING**
5. **Roof antenna**
   - Amplified mast type antenna mounted on roof, see **ROOF MOUNTED ANTENNA, ASSEMBLY** .
6. **Not applicable**
7. **Bass loudspeaker**

- In rear side panel
- Removing and installing, See **FRONT AND REAR BASS LOUDSPEAKERS, REMOVING AND INSTALLING**

8. **Bass loudspeaker**
    - In front door
    - Removing and instaling, See **FRONT AND REAR BASS LOUDSPEAKERS, REMOVING AND INSTALLING**



1 - Radio

- In center console
- Removing and installing ⇒ Page 91-10

2 - Bass loudspeaker (with Monsoon only)

- In inner plenum under cover
- Removing ⇒ Page 91-22

3 - Domed treble loudspeaker (with Monsoon only)

- In inner plenum under covcer
- Removing ⇒ Page 91-22

4 - Domed treble loudspeaker

- In A-pillar
- Removing ⇒ Page 91-20

5 - Roof antenna

- Amplified mast type antenna mounted on roof ⇒ Page 91-29

6 - Not applicable

7 - Bass loudspeaker

- In rear side panel
- Removing and installing ⇒ Page 91-21

8 - Bass loudspeaker

- In front door
- Removing and instaling ⇒ Page 91-21

G03260175

Fig. 50: Identifying Speaker System Components
Courtesy of VOLKSWAGEN UNITED STATES, INC.

DOMED TREBLE LOUDSPEAKERS, REMOVING

Speakers -arrow- in front A-pillars are permanently attached to the interior A-pillar trim cover.

Remove/replace entire A-pillar trim cover

See **PILLARS AND SIDE TRIMS** or **PILLARS AND SIDE TRIMS (CONVERTIBLE)** .

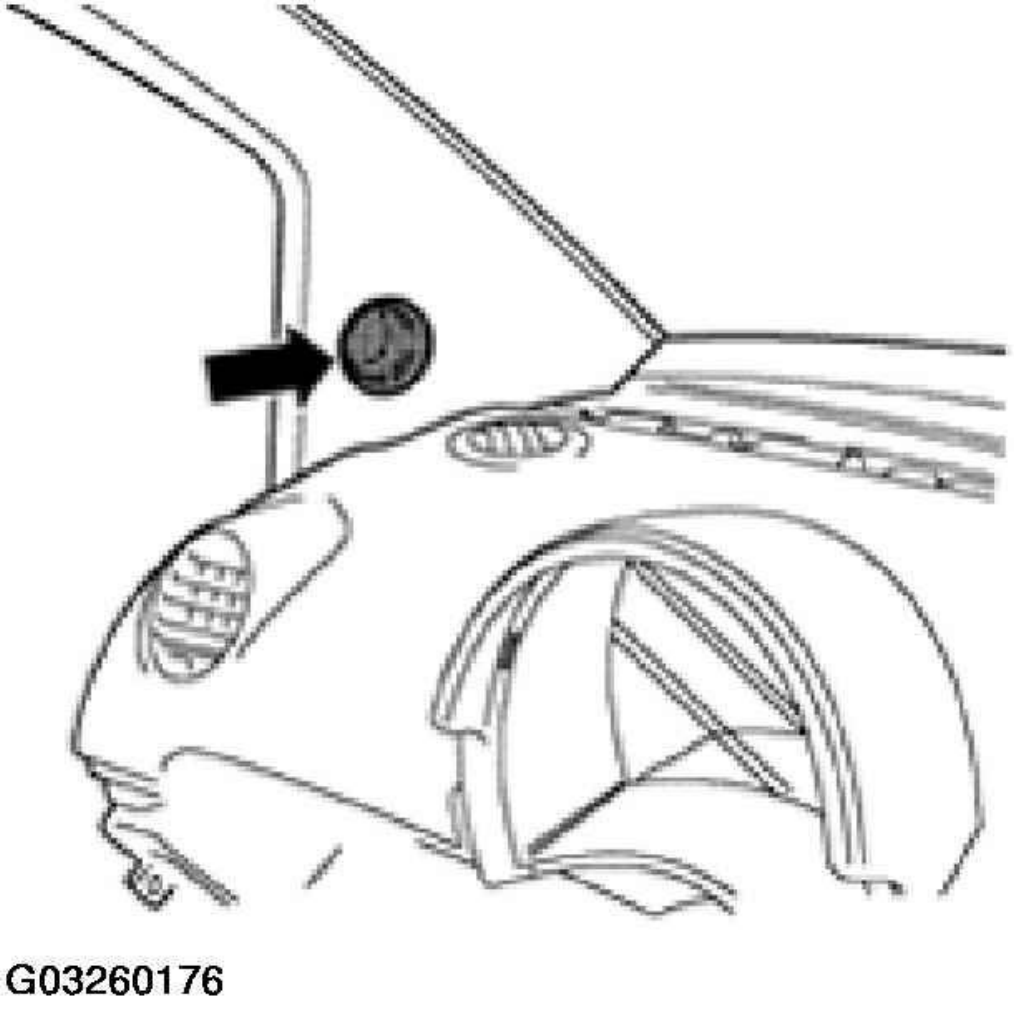


Fig. 51: Identifying Front Pillars Speaker
Courtesy of VOLKSWAGEN UNITED STATES, INC.

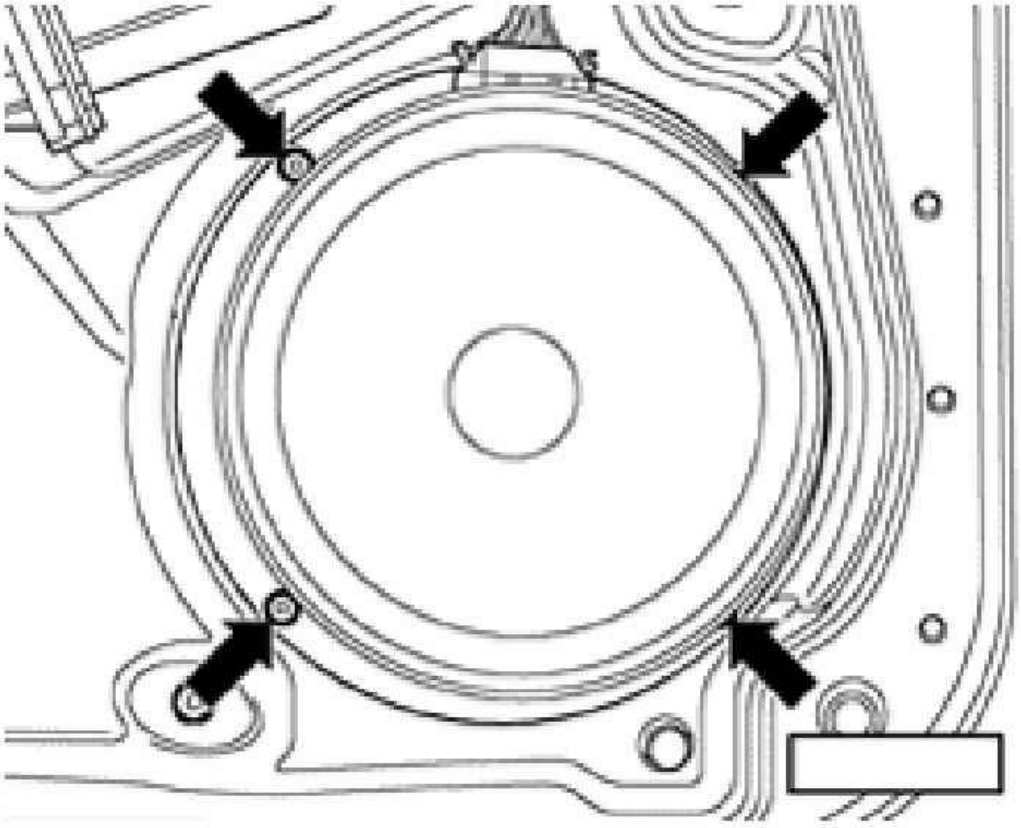
FRONT AND REAR BASS LOUDSPEAKERS, REMOVING AND INSTALLING

Removing

- Remove door trim panel, (or rear trim panel)

  See **INTERIOR TRIM** .

- Disconnect electrical connection.
- Carefully drill out rivets -arrows- and remove loudspeaker.



G03260177

Fig. 52: Locating Loudspeaker Rivets
Courtesy of VOLKSWAGEN UNITED STATES, INC.

CAUTION:

- **To prevent corrosion, make sure that all metal particles from drilling are removed from inside the door.**
- **If the paint on door frame is damaged during drilling, touch-up immediately.**

Installing

- Secure loudspeaker with locally available pop rivets of proper length and diameter.

NOTE: Do not forget rubber insulation ring between door trim and loudspeaker when reinstalling door trim.

DOMED TREBLE AND BASS LOUDSPEAKERS (MONSOON ONLY), REMOVING AND INSTALLING

Removing

- Slide instrument panel center cover -1- in direction of -arrow A- and remove.

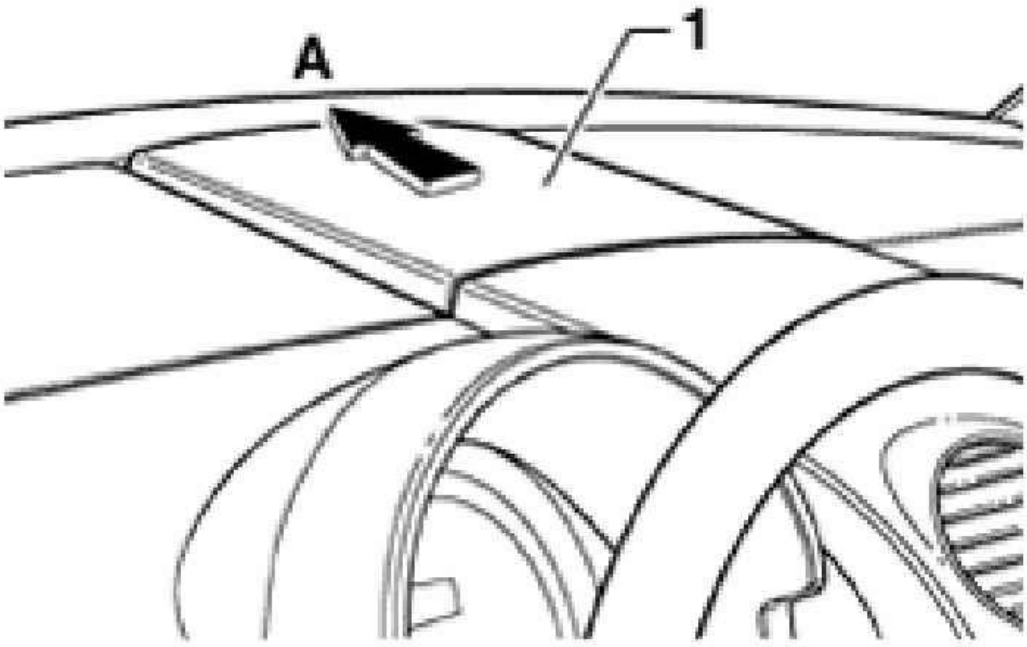


Fig. 53: Sliding Instrument Panel Center Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove screws -arrows-.

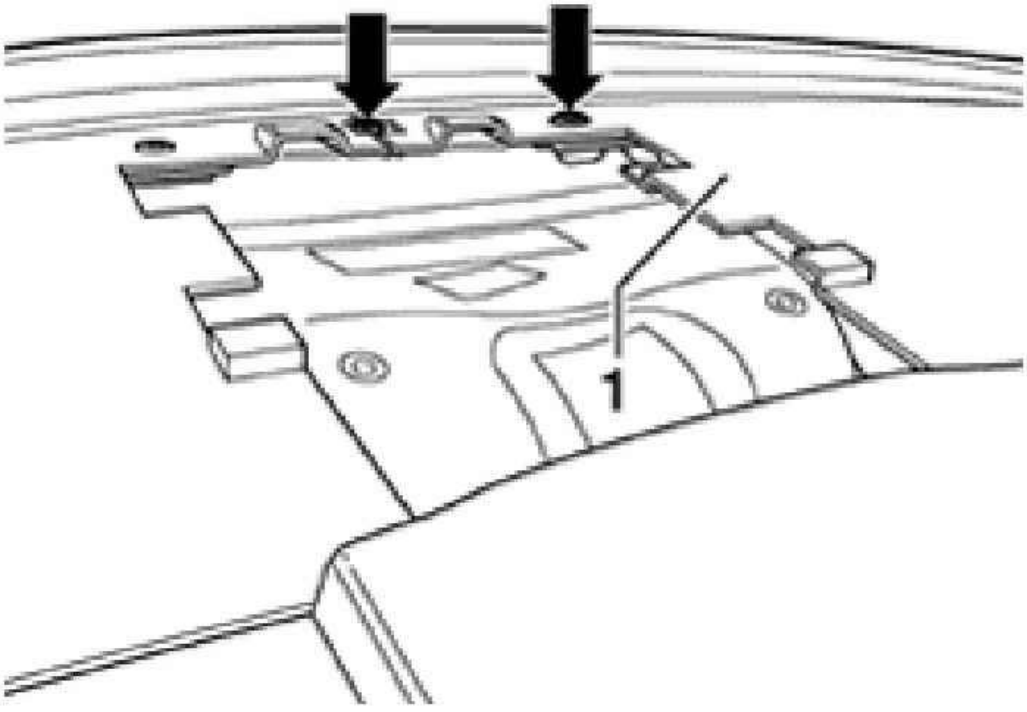


Fig. 54: Removing Screws
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Lift inner plenum chamber cover slightly.

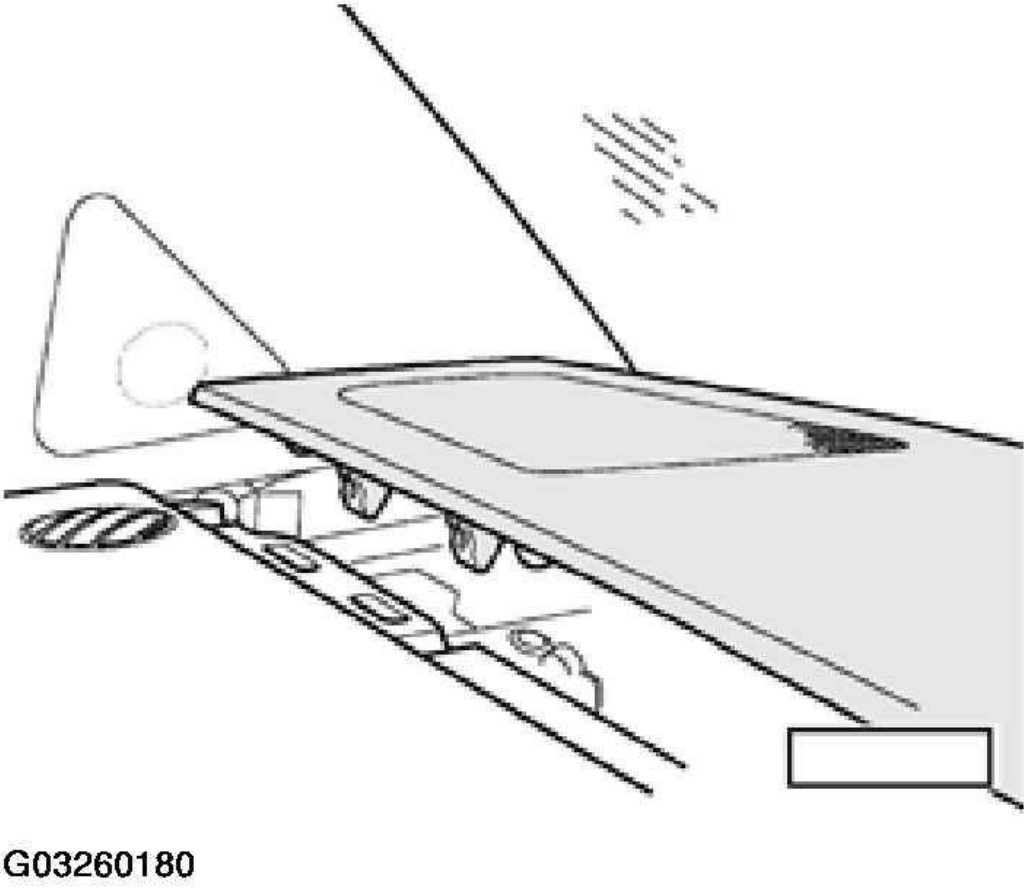


Fig. 55: Removing Inner Plenum Chamber Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Depress locking tabs and disconnect electrical connection -arrows-.

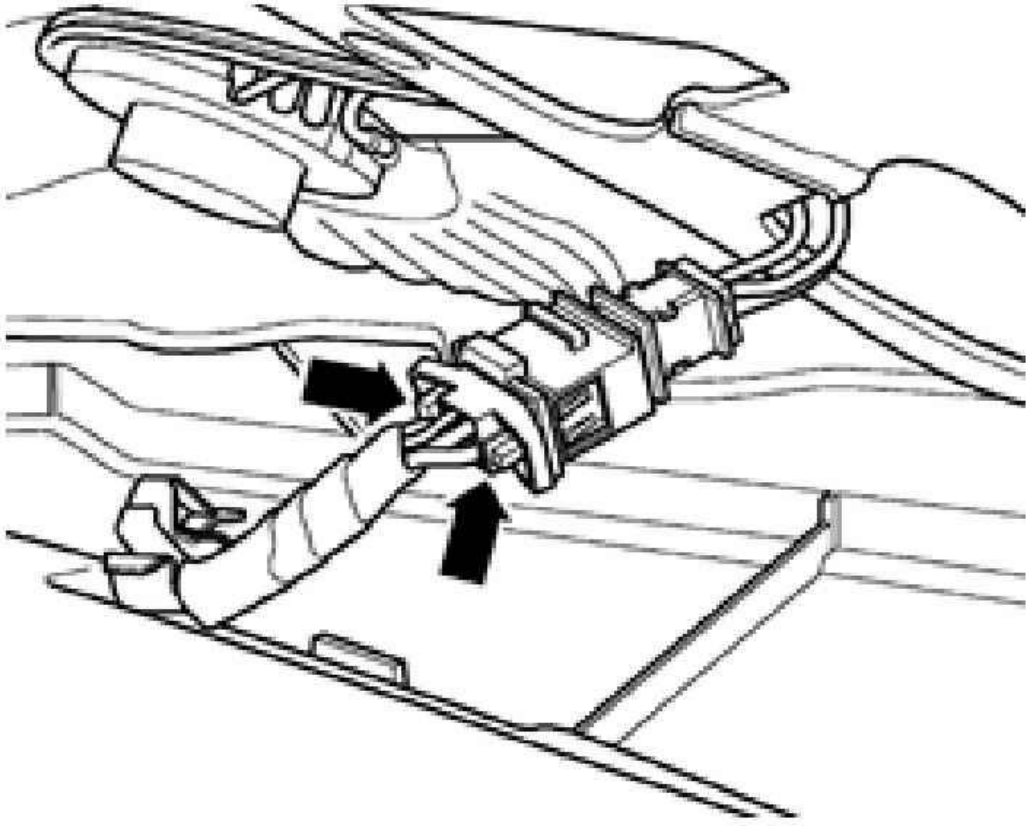
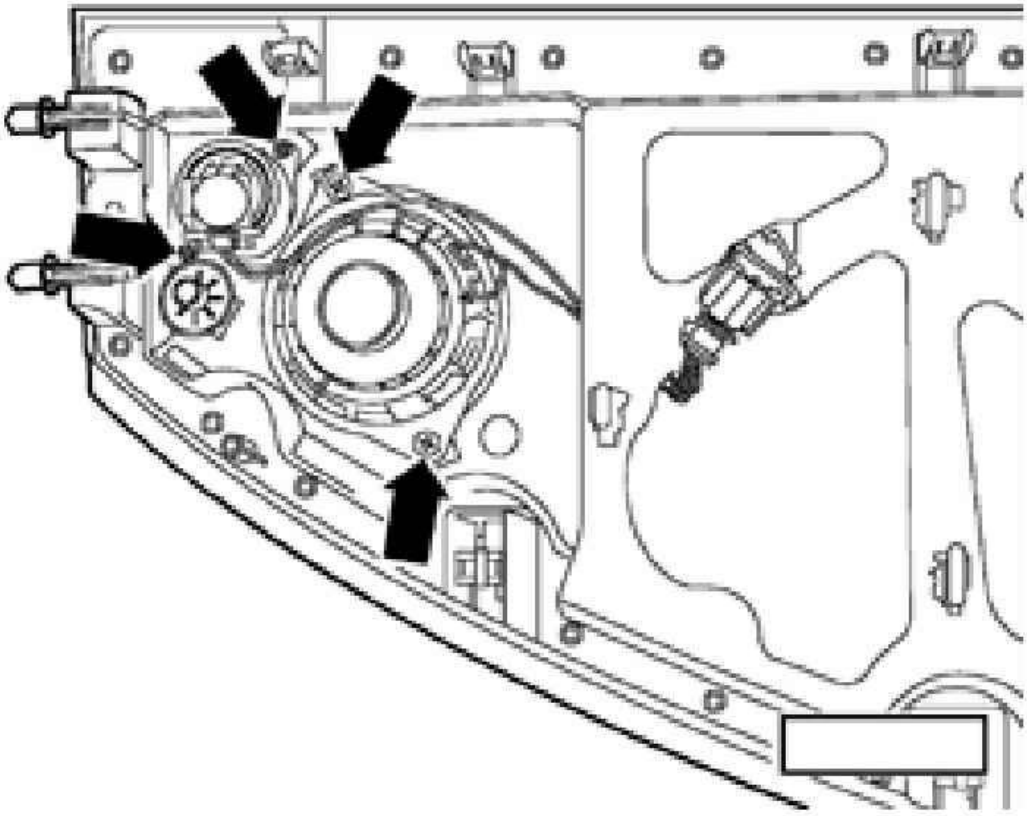


Fig. 56: Disconnecting Electrical Connection
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Carefully drill out rivets -arrows- or remove screws -arrows- as applicable and remove loudspeaker.



G03260182

Fig. 57: Removing Loudspeaker Rivets And Screws
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE: Installation position.

Installing

- Install in reverse order of removal, noting the following.
  - Screws: tightening torque: 3 N.m (27 in lb)
  - Secure loudspeaker with locally available pop rivets of proper length and diameter.

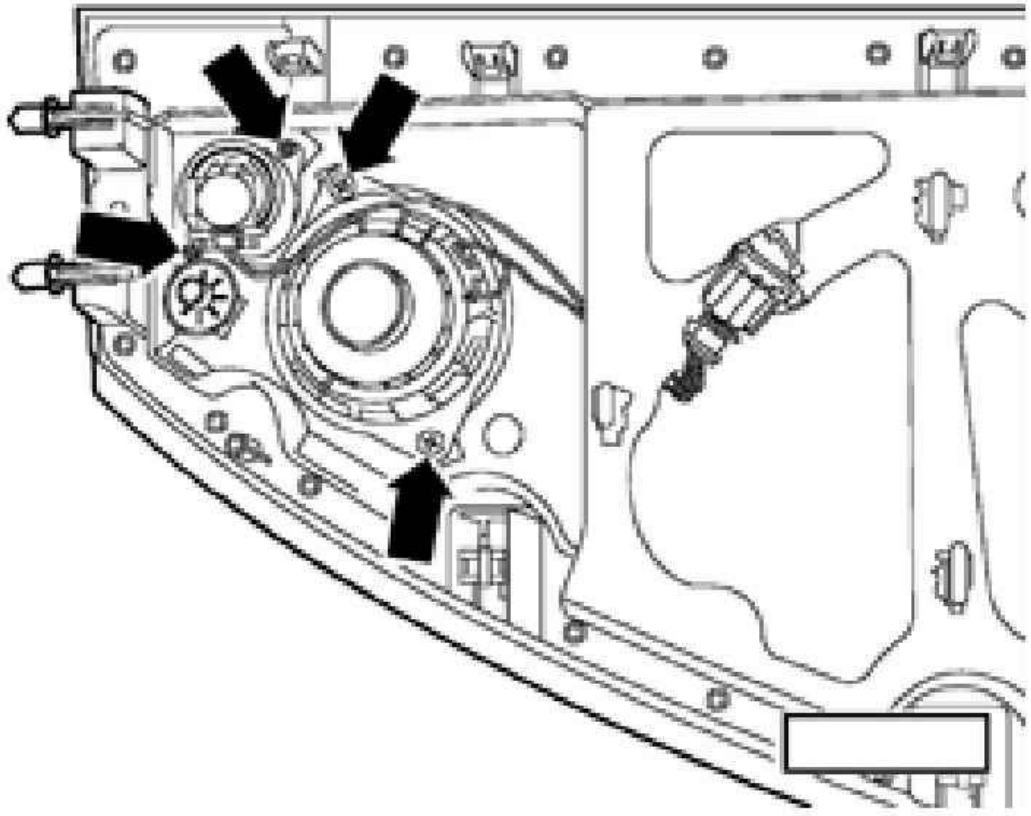


Fig. 58: Installing Loudspeaker Rivets And Screws
Courtesy of VOLKSWAGEN UNITED STATES, INC.

ANTI-THEFT SECURITY CODE

GENERAL INFORMATION

All radios are equipped with an electronic anti-theft system.

The electronic anti-theft system is activated and locks the radio as soon as:

- Voltage supply (terminal 30) drops below a predetermined voltage value.
- The radio unit is disconnected from voltage supply (terminal 30) (e.g. when removing radio unit).
- Vehicle battery (terminal 30) has been disconnected.

A radio which is locked by the electronic anti-theft system, is indicated by the letters "SAFE," which appears on

the display when the radio is switched on.

ANTI-THEFT SECURITY CODE, INPUTTING

The radio will only work, if the correct code number for the anti-theft system is entered.

NOTE:

- **The anti-theft protection code can be found along with the radio number on the radio card. See Owner's Manual.**
- **For safety reasons, never leave the radio card in the car. If necessary, ask the customer for the code.**

Perform steps in the exact order given below:

- Obtain anti-theft code number from radio card.
- Switch radio on.

"SAFE" will appear on the display.

After 3 seconds, the number 1000 will appear on the display.

- Use station preset buttons (B) -1- to -4- to enter the 4digit code number.
- Press preset button -1- to enter first digit in the code number, preset button -2- for second digit and so on.
- To enter code number, press applicable button repeatedly until desired number appears on display.

  The value range for each of the 4 digits is between 0 and 9.

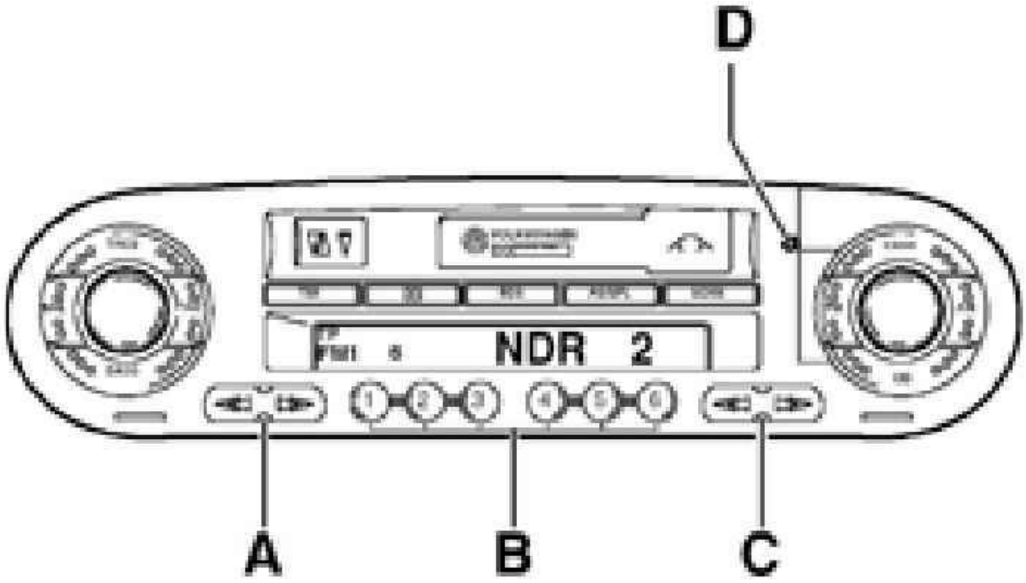


Fig. 59: Identifying Radio Buttons
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- If a button is pressed beyond desired number, the sequence will start over at 1 after 9 is pressed.
- When entire code is entered, press right side of "Seek/Track" rocker button -C- (">") for about 2 seconds, until an audible signal is heard.

NOTE:

- **If a wrong code was accidentally entered, the display will flash "SAFE" initially, and then remain on.**
- **The coding procedure may be repeated a second time (the number of coding attempts is displayed). If a wrong code is entered again, the radio will be disabled for an hour. If this happens, leave the radio ON and the key in the ignition for one hour. After the hour has elapsed, the number of attempts stops being displayed and the electronic lock can be cancelled.**
- **The cycle is: 2 attempts, 1 hour locked**

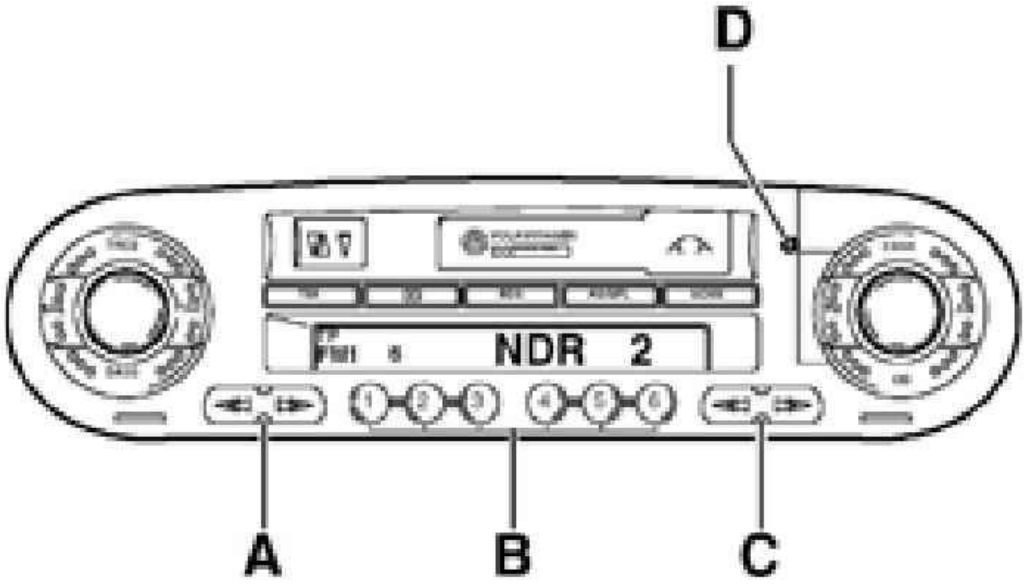


Fig. 60: Identifying Radio Buttons
Courtesy of VOLKSWAGEN UNITED STATES, INC.

ANTENNA SYSTEM

GENERAL INFORMATION

CAUTION: Before working on the electrical system:

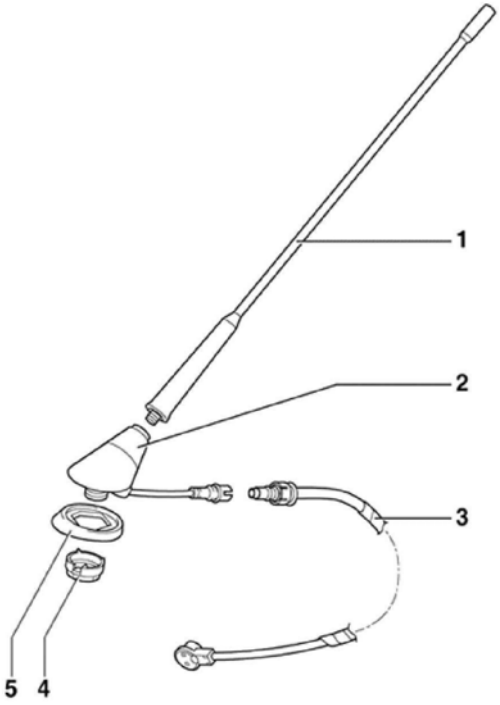
- **Determine the correct coding for the anti-theft radio.**
- **Switch ignition off.**
- **Disconnect the battery Ground (GND) strap.**
- **After reconnecting the battery, re-code and check operation of the anti-theft radio. Also check operation of the clock and the power windows according to the Repair Manual and/or the Owner's Manual.**

ROOF MOUNTED ANTENNA, ASSEMBLY

NOTE: The following list refers to items in Fig. 61 .

1. **Antenna rod**

2. **Antenna base**
    - The amplifier coil is located in the antenna base
    - Removing and installing: lower molded headlining at rear
3. **Antenna cable**
    - Routing: From roof antenna to front of center console
4. **Hex nut M14 with serrated washer**
    - Serrated washer is attached to hex nut with plastic ring
    - Apply contact grease to the inside of the roof in area of serrated washer
5. **Gasket**



1 - Antenna rod

2 - Antenna base

- The amplifier coil is located in the antenna base
- Removing and installing: lower molded headlining at rear

3 - Antenna cable

- Routing: From roof antenna to front of center console

4 - Hex nut M14 with serrated washer

- Serrated washer is attached to hex nut with plastic ring
- Apply contact grease to the inside of the roof in area of serrated washer

5 - Gasket

G03260186

Fig. 61: Exploded View Of Roof Mounted Antenna
Courtesy of VOLKSWAGEN UNITED STATES, INC.

RECEPTION INTERFERENCE, SUPPRESSION MEASURES

Most electrical consumers and features in the vehicle are developed to include radio interference measures. These include:

- Coolant fan -V7-
- Windshield wiper motor -V-
- Rear window wiper motor -V12-

Additional Ground (GND) connections on vehicle with radio or prepared for radio:

- Ground (GND) strap from left wheel housing to fender

CD CHANGER

GENERAL INFORMATION

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**
- **Disconnect negative (-) battery terminal.**
- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified.**

The optional CD changer wiring and mounting is pre-installed in production. Installation applications:

- m.y. 1998: H, See **CD CHANGER - M.Y. 1988, INSTALLING** .
- m.y. 1999 through 07.02 production:, See **CD CHANGER - M.Y. 1999 THROUGH 07.02 PRODUCTION, INSTALLING** .
- from 08.02 production:, See **CD CHANGER - FROM 08.02 PRODUCTION, INSTALLING AND REMOVING** .

CD CHANGER - M.Y. 1988, INSTALLING

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**
- **Disconnect negative (-) battery terminal.**

- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified.**

The following describes the factory-approved service installation of Volkswagen CD changers into m.y. 1998 New Beetle models equipped with "Premium V" radios.

CD changer: 1J5 035 111

Installation kit: 1 C0 098 201

CAUTION:

- **Part numbers are for reference only. Always check with your Parts Department for the most up to date information.**
- **Always confirm CD changer and radio compatibility with your Parts Department.**

Installing

NOTE:

- **Carefully review all of the following instructions before proceeding with installation.**
- **Never install CD changer in a location, position, or manner other than specified by these instructions.**

Installed position: Left rear of luggage compartment, just behind folding rear seat.

CD prep (changer cable and connector routing) is visible from inside luggage compartment, at left rear wheel well.

- Lift luggage compartment carpet.

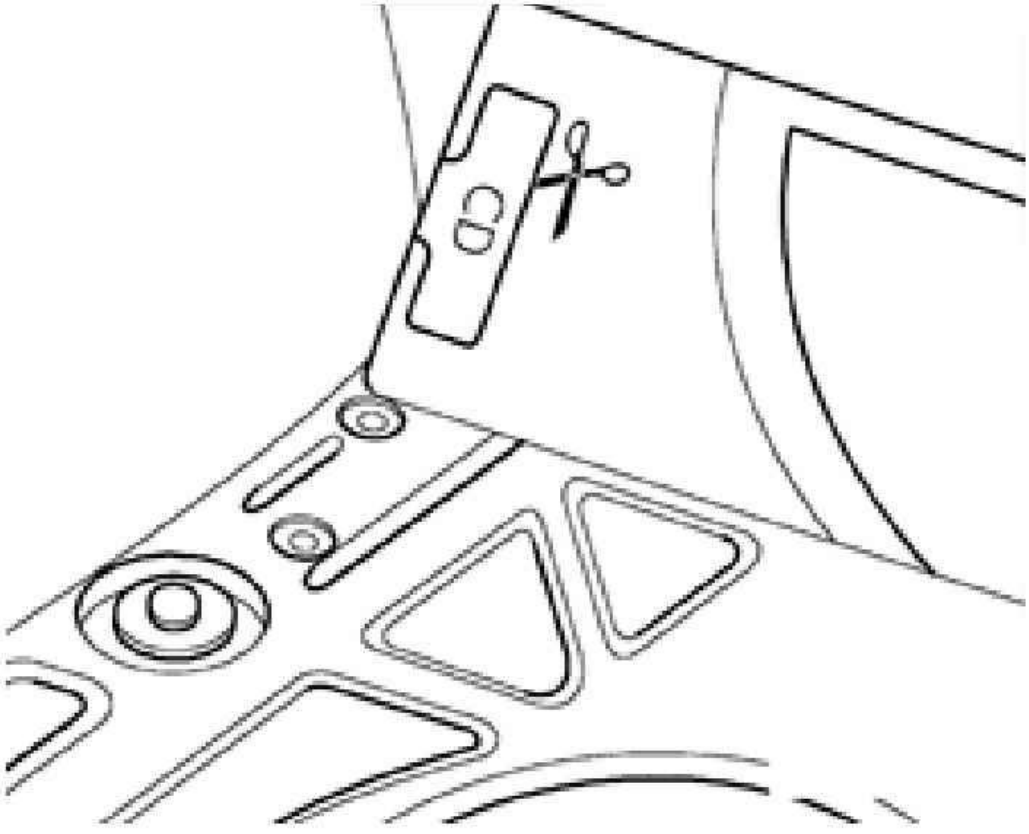


Fig. 62: Lifting Luggage Compartment Carpet
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Note location of three CD changer bracket mounting holes -arrows-.

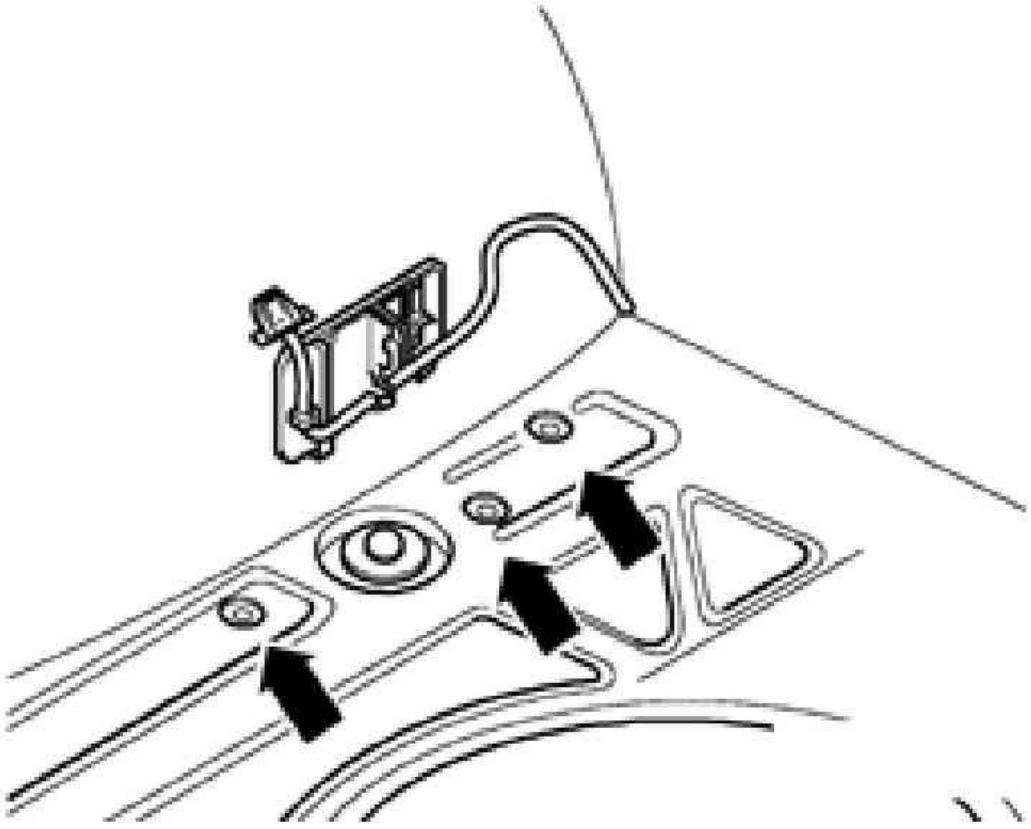


Fig. 63: Identifying Three CD Changer Bracket Mounting Holes
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Depending on production, one of two different types of CD changer (cable) prep may be used.

Version 1

CD changer connector -1- and cable secured by clip on left side of luggage compartment.

- Remove clip -arrow- and fold back connector.

Version 2

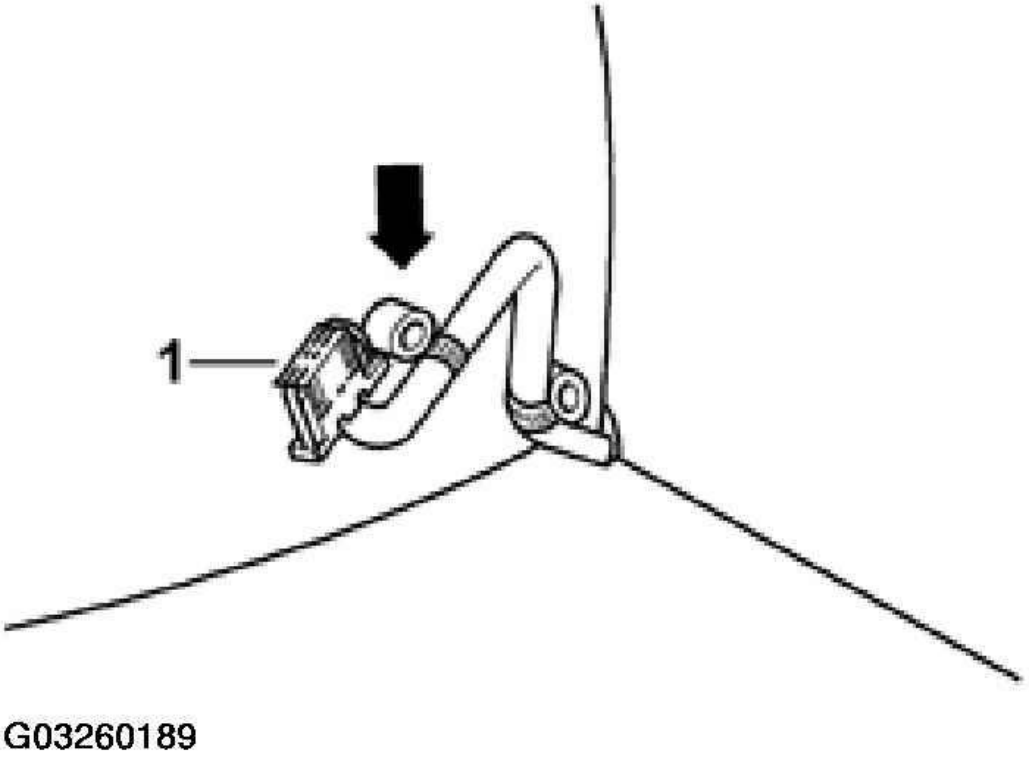


Fig. 64: Identifying CD Changer Connector And Secure Clip
Courtesy of VOLKSWAGEN UNITED STATES, INC.

CD changer connector/harness secured inside cover -arrow-.

- Unclip cover and pull out harness connector.

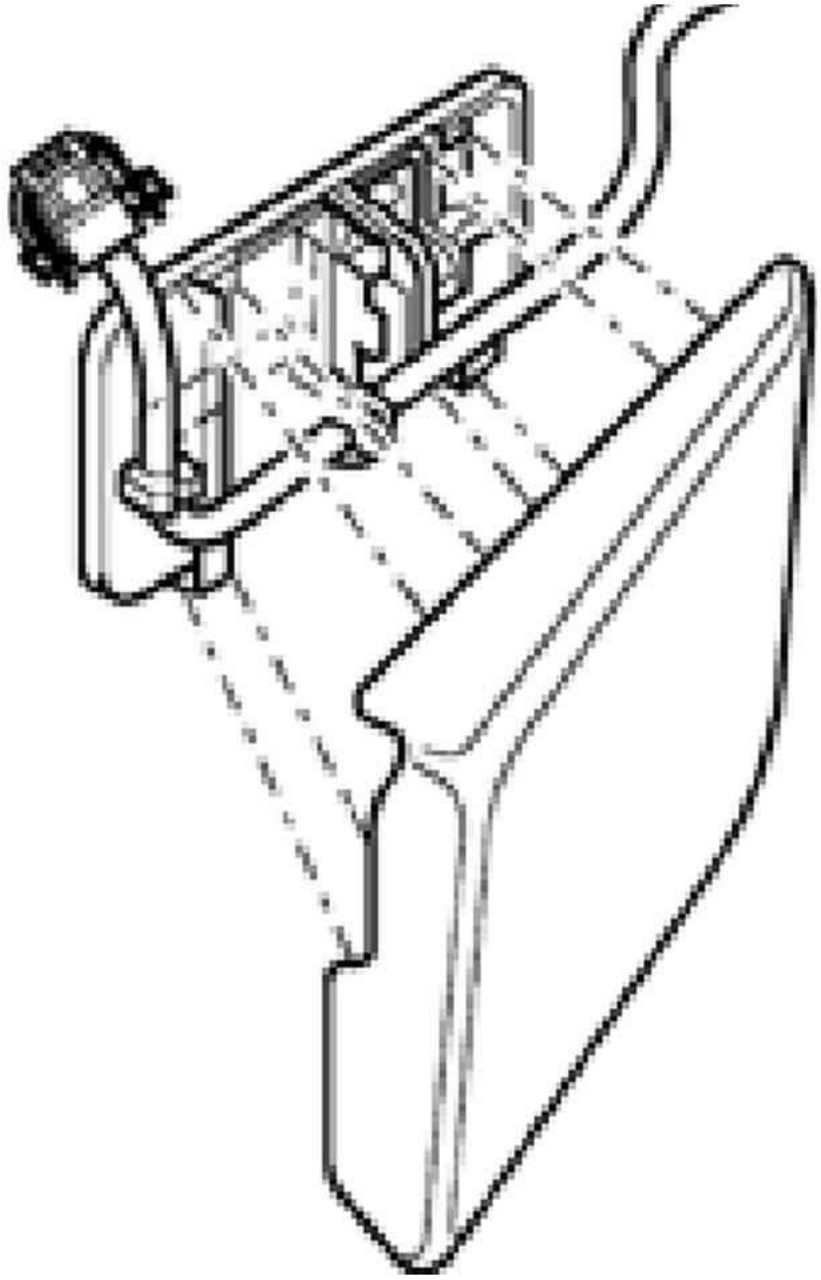


Fig. 65: Removing CD Changer Connector/Harness Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Note the cut marking on the back side of left luggage compartment carpet.

- Cut carpet along marked area -arrow-.

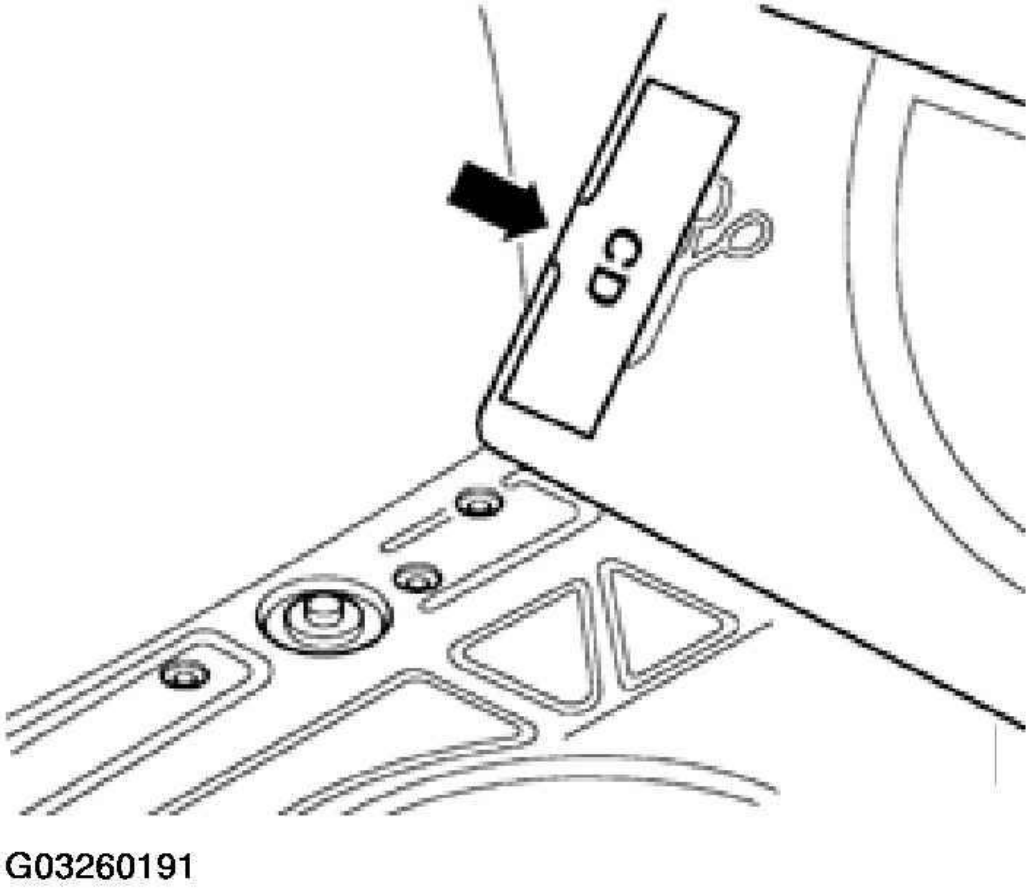


Fig. 66: Cuting Carpet
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Refit luggage compartment carpet (note area removed).

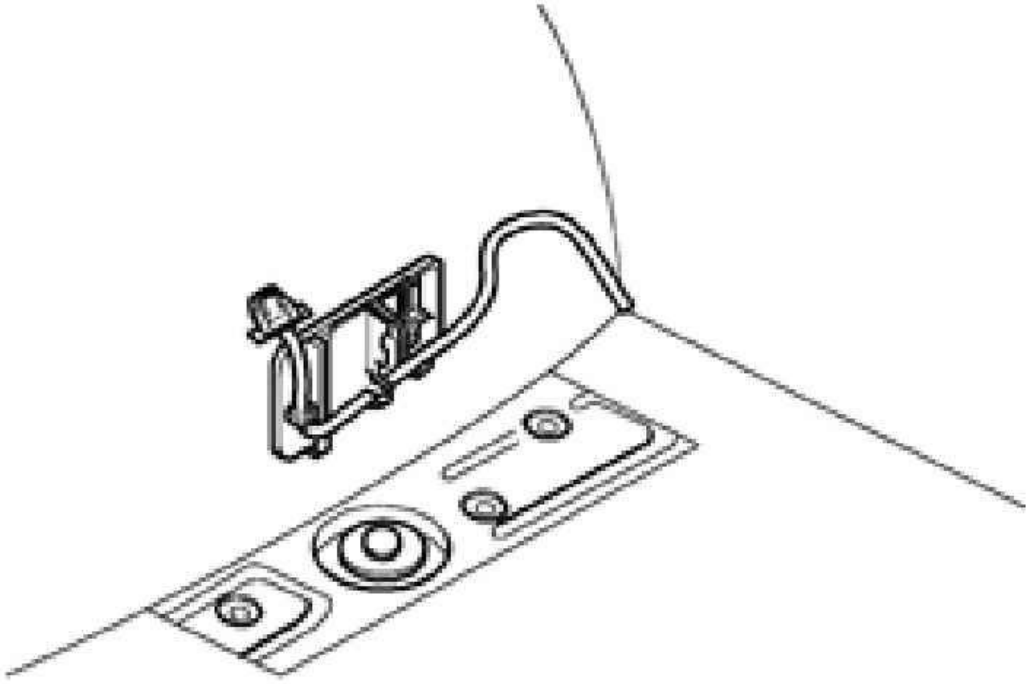


Fig. 67: Installing Luggage Compartment Carpet
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Mount CD changer bracket -1- to floor using hex screws -2-.
- Tightening torque: 4.5 N.m (39 in lb)

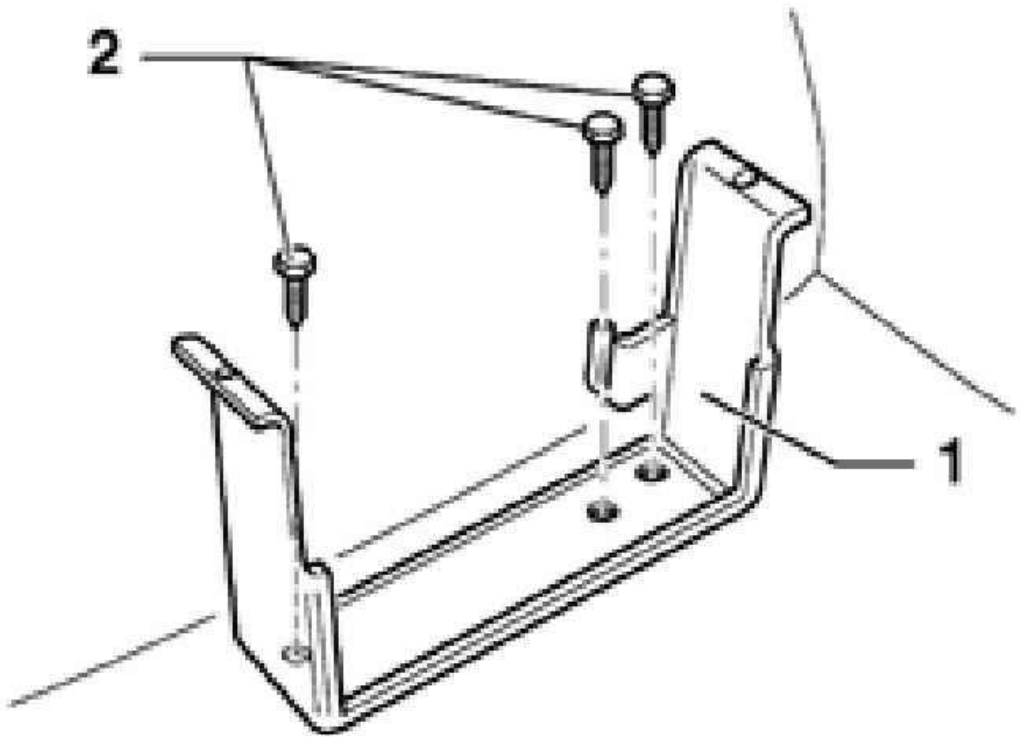


Fig. 68: Installing CD Changer Bracket Hex Screws
Courtesy of VOLKSWAGEN UNITED STATES, INC.

CD changer, preparation

- Check settings of both CD changer angle of installation selection switches. Both switches must be set the the vertical ("V") position. Switches are located on the side and bottom of CD changer.

NOTE:

- **CD playback will skip if switches are not set correctly.**
- **Always check/set switches prior to CD installation.**
- **Switches must move completely to their end positions.**

- If switches need to be reset, loosen the securing screws, slide the switch towards the top into the "V" position and tighten screw.
  - Tightening torque: 2 N.m (18 in lb)
- Cover selector switch openings with self adhesive seals (if supplied).

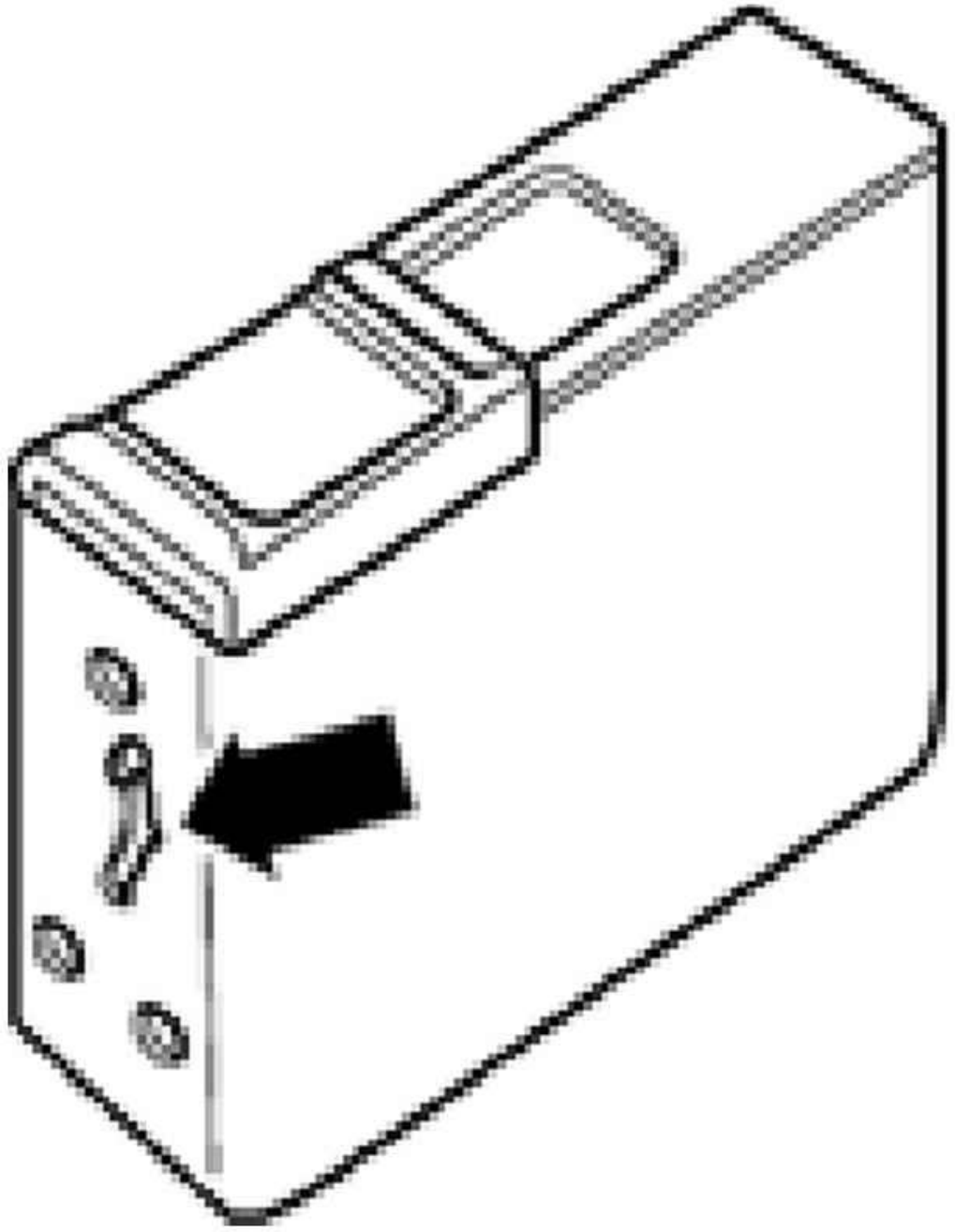


Fig. 69: Identifying CD Changer
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Attach both support brackets -1- to CD changer with screws -2-..
  - Tightening torque: 3 N.m (27 in lb)
- Connect CD changer harness cable connector.
- Route CD changer cable and clip connector -1- into the connector support piece located on the CD changer bracket -arrow-.

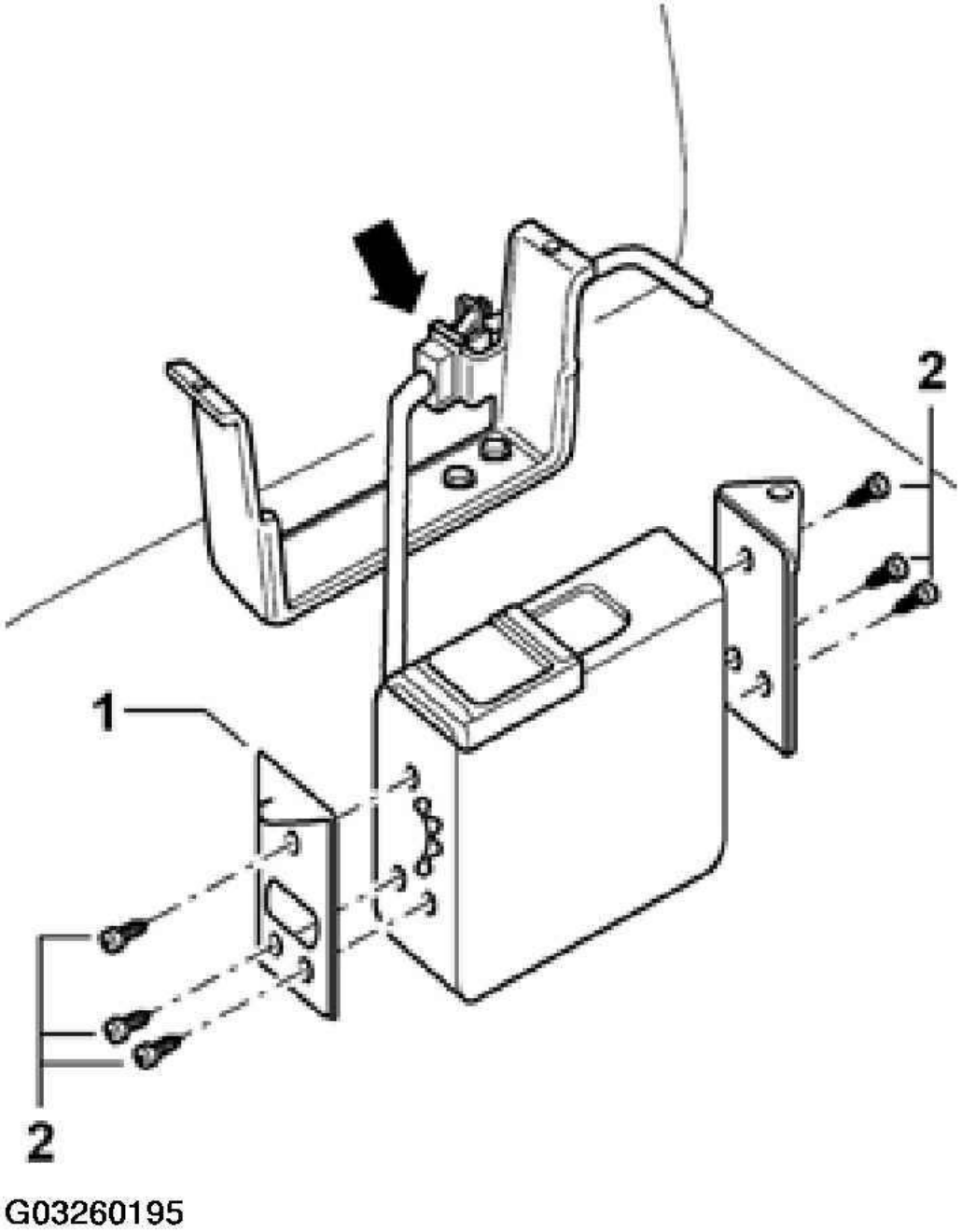


Fig. 70: Installing Both Support Brackets To CD Changer
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Slide CD changer into CD changer bracket from the top ensuring that the CD changer connector is

securely located in the bracket -arrow-.

- Install CD changer protective cover -1-, ensuring the tips at the bottom of the cover align with their slots in the CD changer bracket.
- Secure cover and bracket with screws from top.
  - Tightening torque: 3 N.m (27 in lb)
- Code "Sound System" for CD operation using VAG 1551/1552 Scan Tool (ST), See **Code Control Module (function 07)**

NOTE:

- **Radio/CD OBD function is inoperative if radio system is not coded for CD operation.**

- Refer to and check proper operation of CD changer.

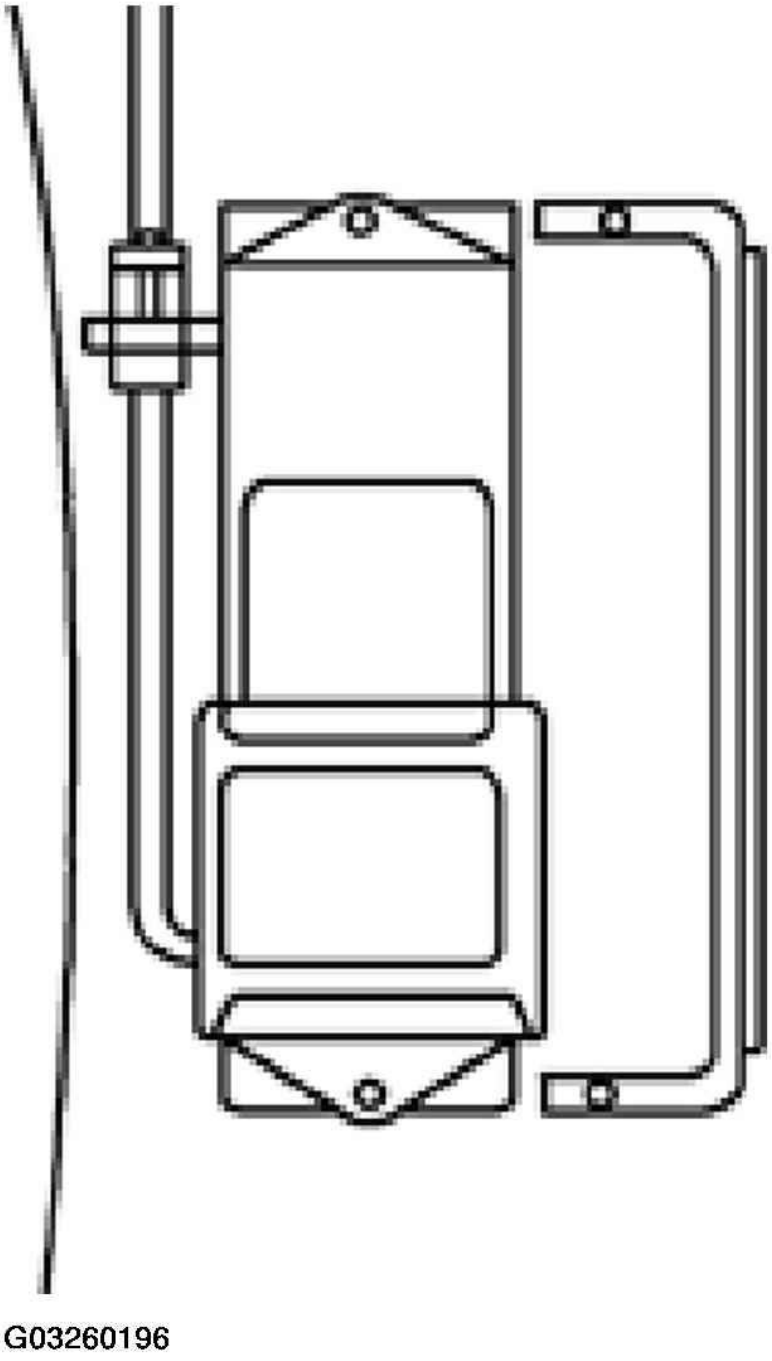


Fig. 71: Installing CD Changer Into CD Changer Bracket
Courtesy of VOLKSWAGEN UNITED STATES, INC.

CD CHANGER - M.Y. 1999 THROUGH 07.02 PRODUCTION, INSTALLING

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**
- **Disconnect negative (-) battery terminal.**
- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified.**

The following describes the factory approved service installation of Volkswagen CD changers into New Beetle models from m.y. 1999 through 07.02 production equipped with "Premium V" or "Premium V - Monsoon" radios.

CD changer: 1J6 035 111

Installation kit: 1 C0 098 201

CAUTION:

- **Part numbers are for reference only. Always check with your Parts Department for the most up to date information.**
- **Always confirm CD changer and radio compatibility with your Parts Department.**

Installing

NOTE:

- **Carefully review all of the following instructions before proceeding with installation.**
- **Never install CD changer in a location, position, or manner other than specified by these instructions.**

Installed position: Left rear of luggage compartment, just behind folding rear seat.

CD prep (changer cable and connector routing) visible from inside luggage compartment, at left rear wheel well.

- Lift luggage compartment carpet and cut as shown on carpet back.

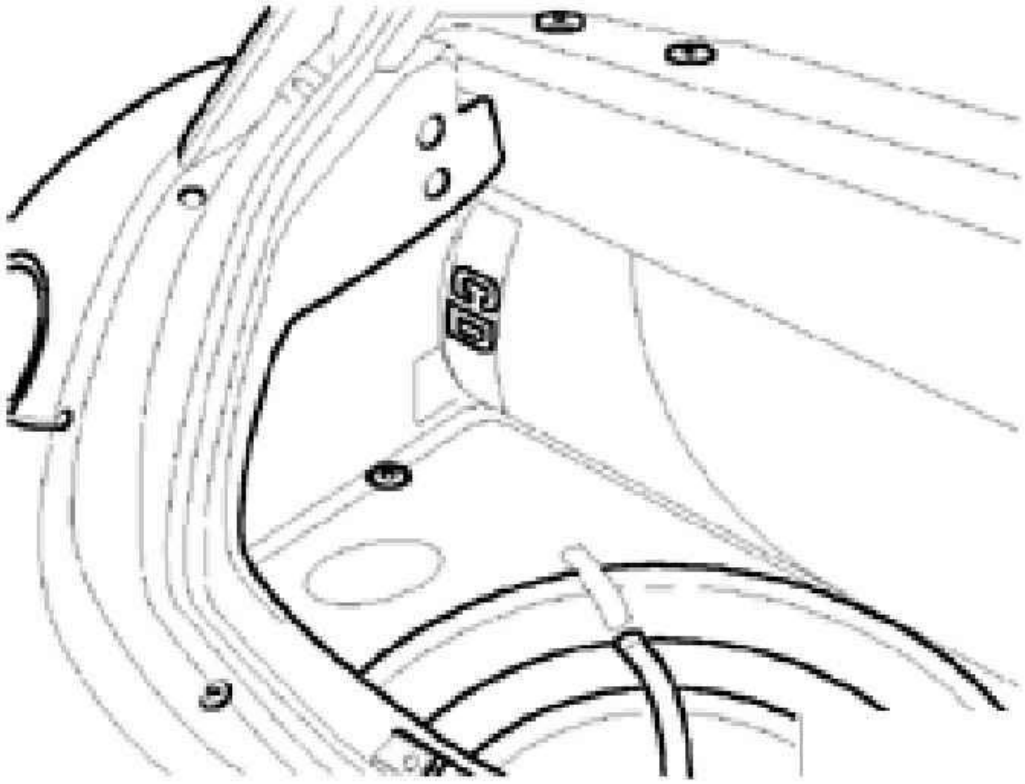


Fig. 72: Lifting Luggage Compartment Carpet
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Note location of three CD changer bracket mounting holes -arrows-.

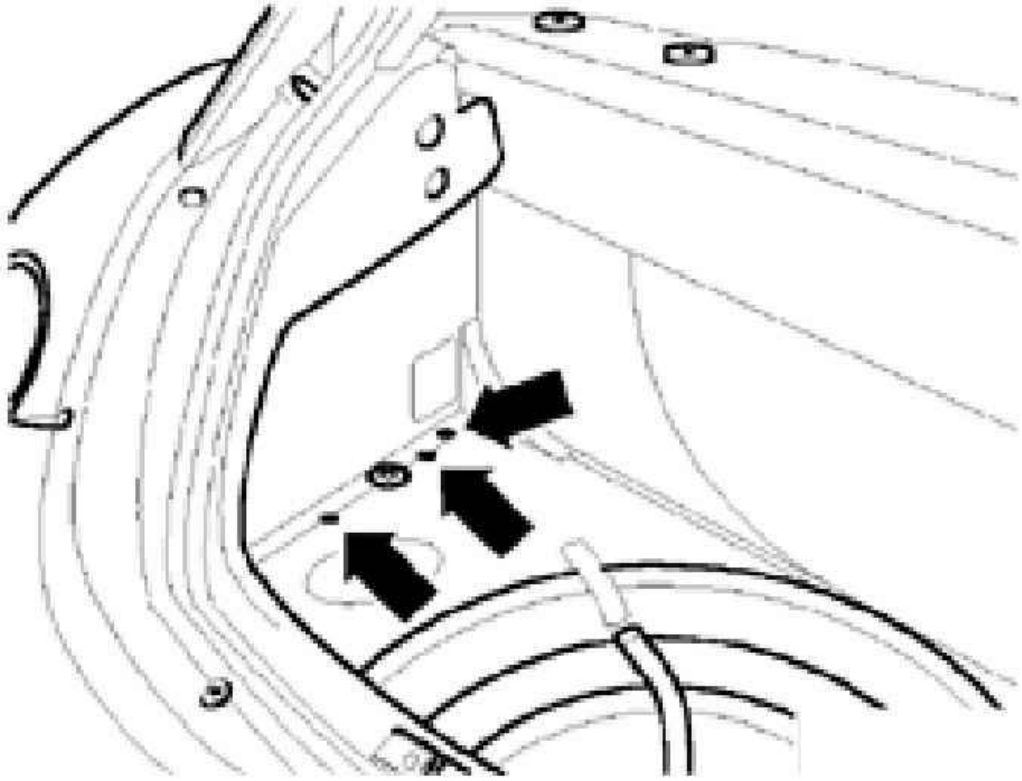


Fig. 73: Identifying Three CD Changer Bracket Mounting Holes
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove CD changer harness connector cover.
- Release harness connector as shown.

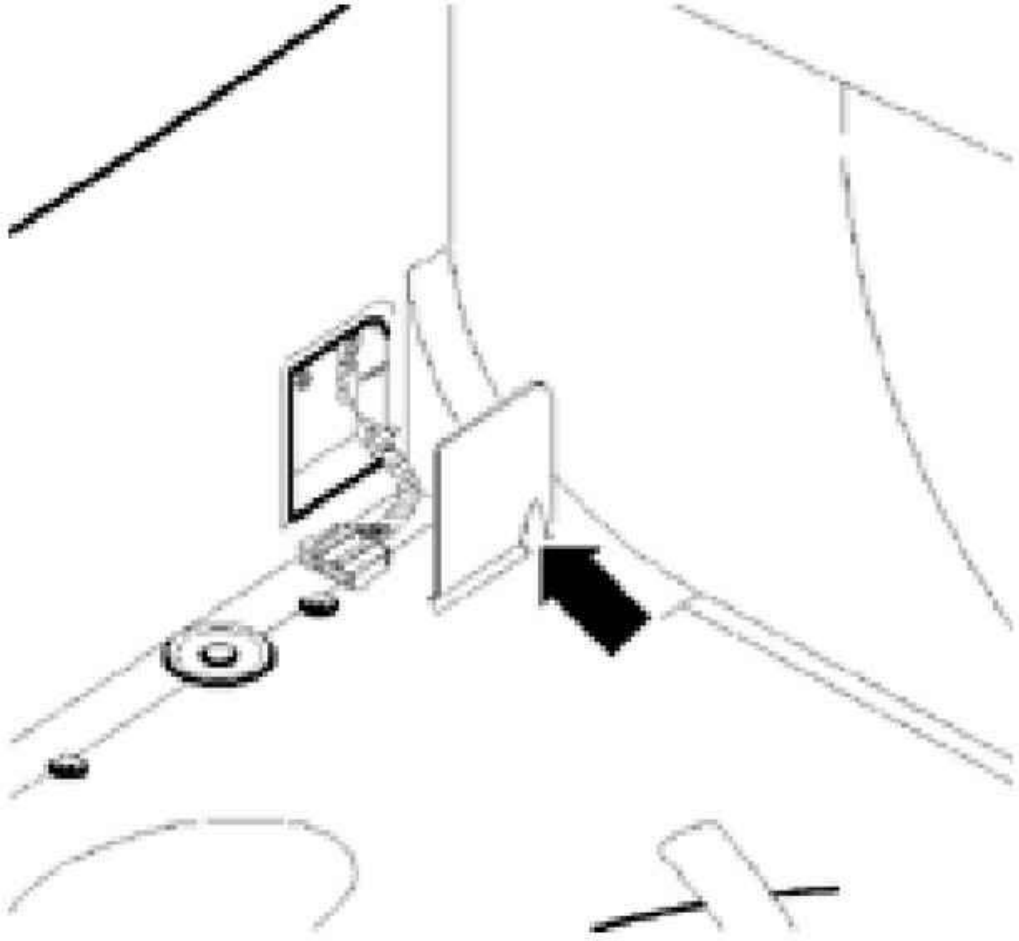


Fig. 74: Removing CD Changer Harness Connector Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Locate cutting mark inside cover.
- Cut marked area as shown -arrow-.
- Refit luggage compartment carpet (note area removed).

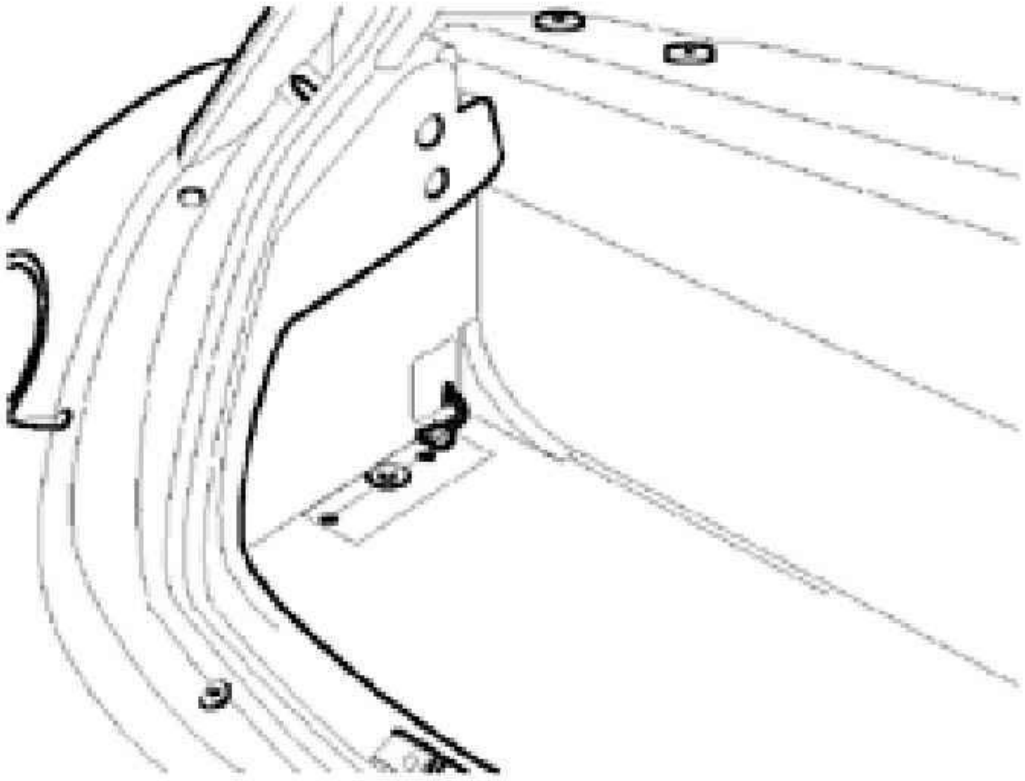


Fig. 75: Installing Luggage Compartment Carpet
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Mount CD changer bracket -1- to floor using hex screws -2-.
  - Tightening torque: 4.5 N.m (39 in lb)

CD changer, preparation

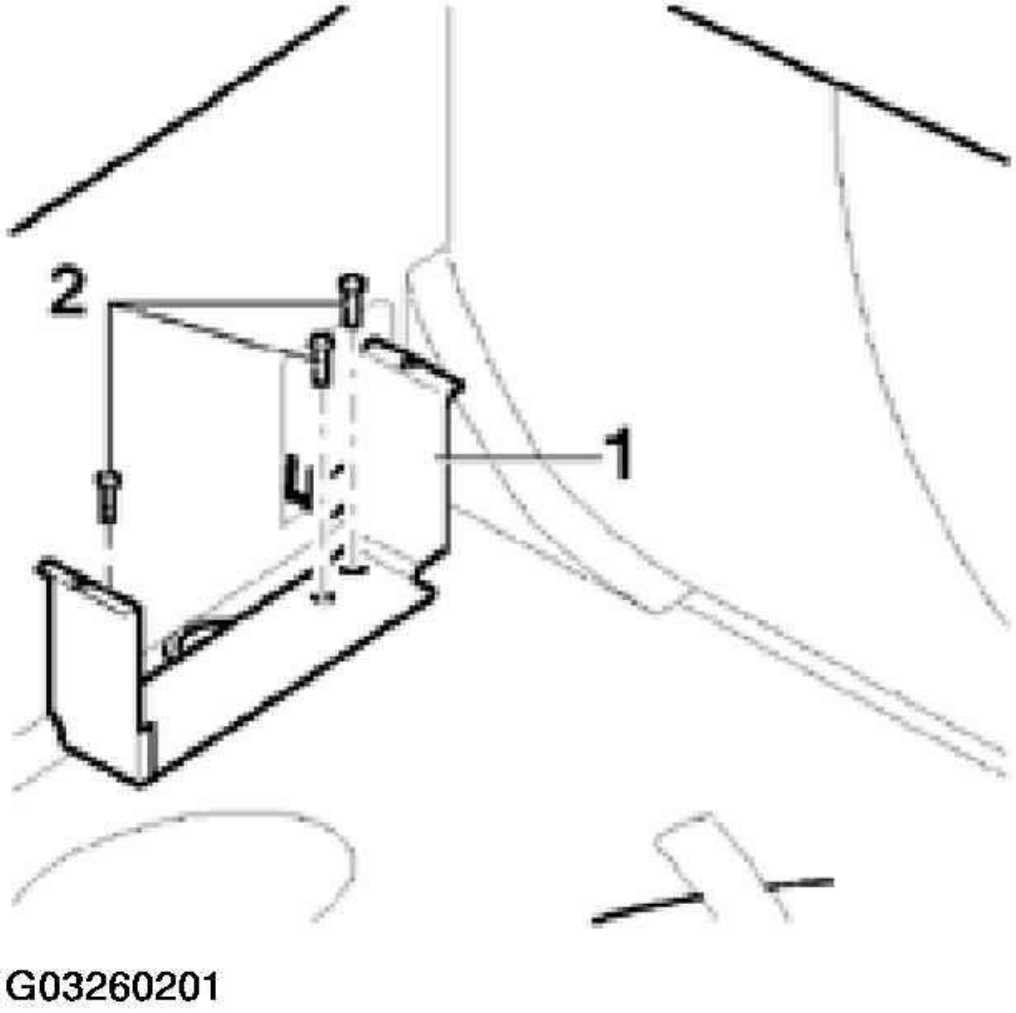


Fig. 76: Installing CD Changer Bracket To Floor With Hex Screws
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Verify both CD changer position settings. Settings must be located on top.

  If not, loosen lateral screws, slide them toward top into "V" position and tighten.

  - Tightening torque: 3 N.m (27 in lb)

NOTE:

- **CD playback will skip if switches are not set correctly.**
- **Always check/set switches prior to CD installation.**

- **Switches must move completely to their end positions.**

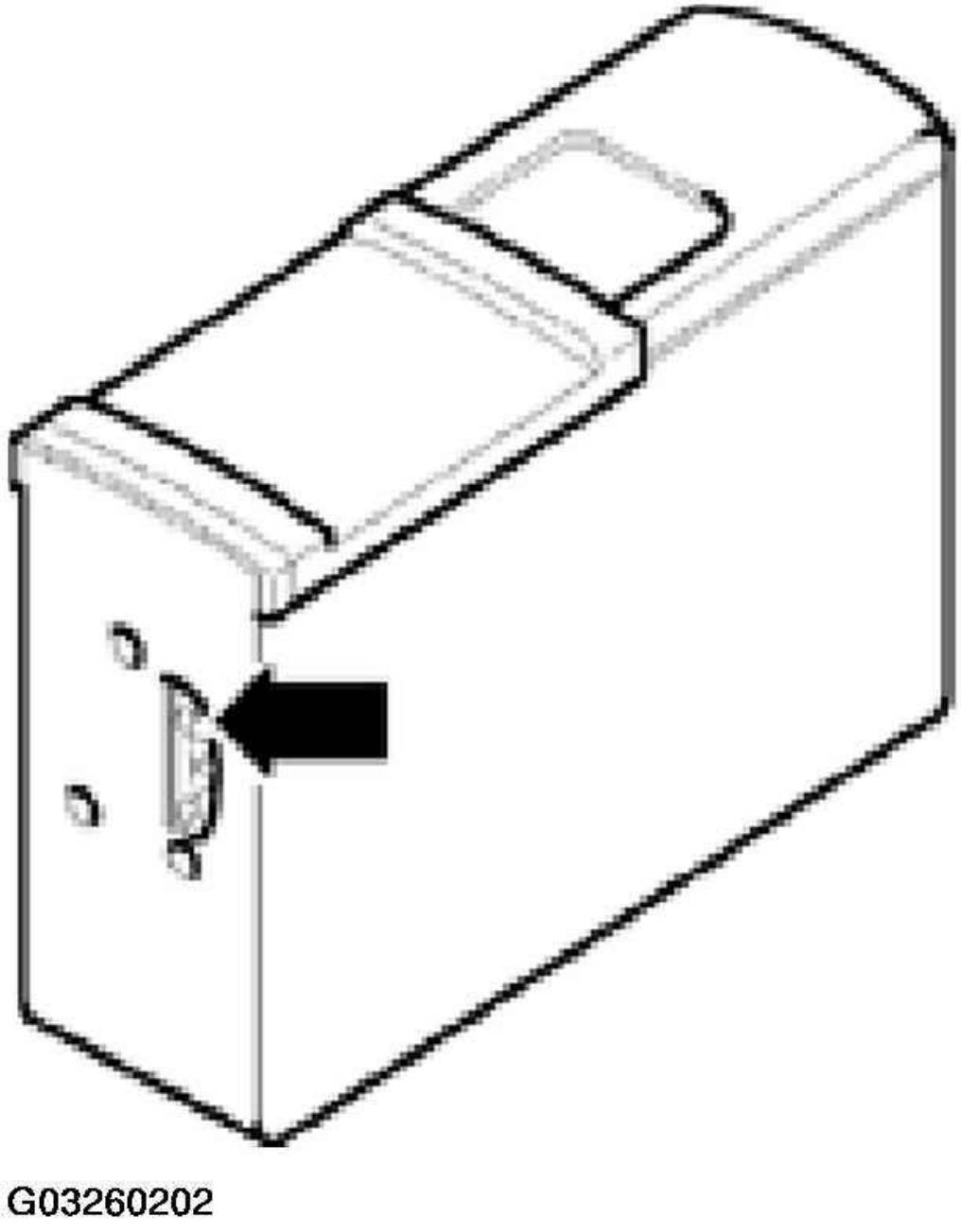


Fig. 77: View Of CD Changer
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Attach support -1- to CD, install with screws -2-.
  - Tightening torque: 3 N.m (27 in lb)
- Connect CD Changer harness cable connector (arrow).
- Place connectors -1- in bracket and CD Changer in bracket.

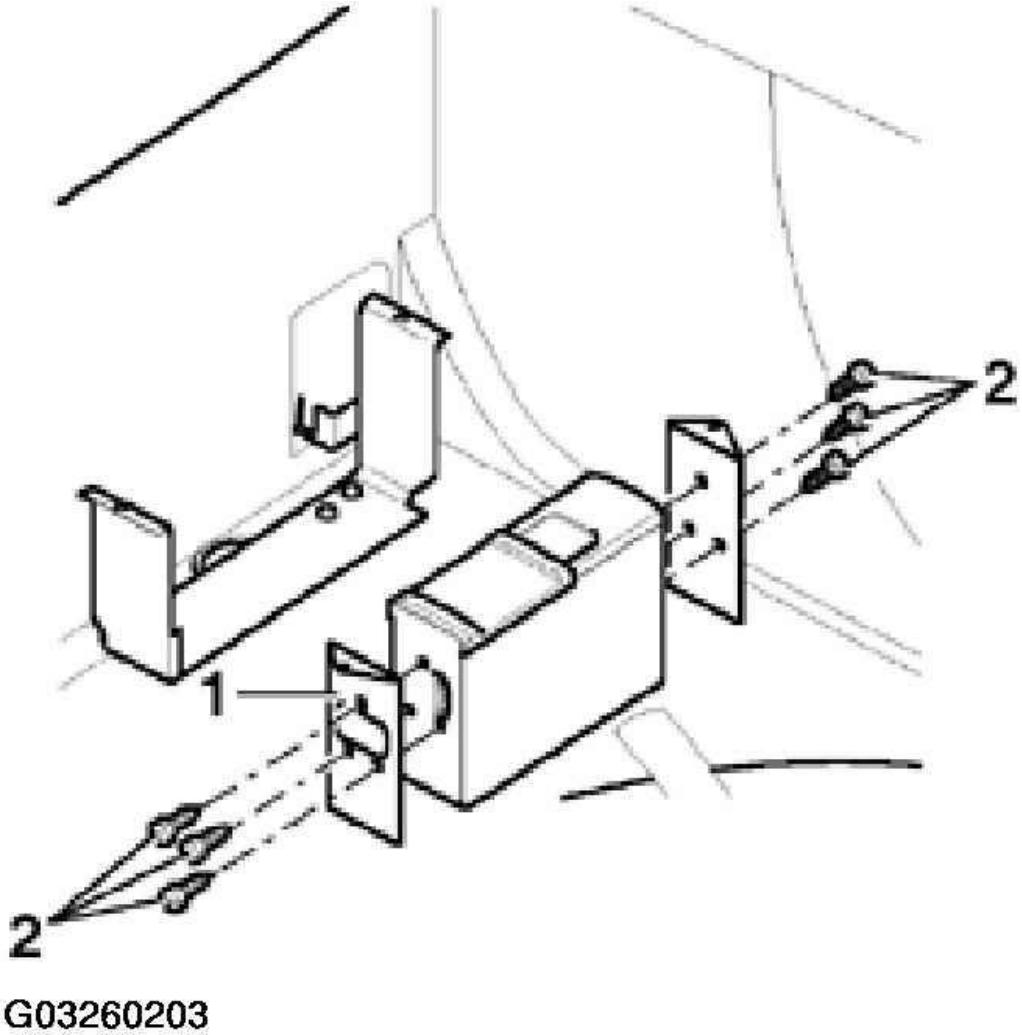


Fig. 78: Installing Support To CD Changer
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Connectors should be in same side of harness support (arrow).

- Install CD cover -1- and ensure tips at bottom of cover align with slots in bracket.

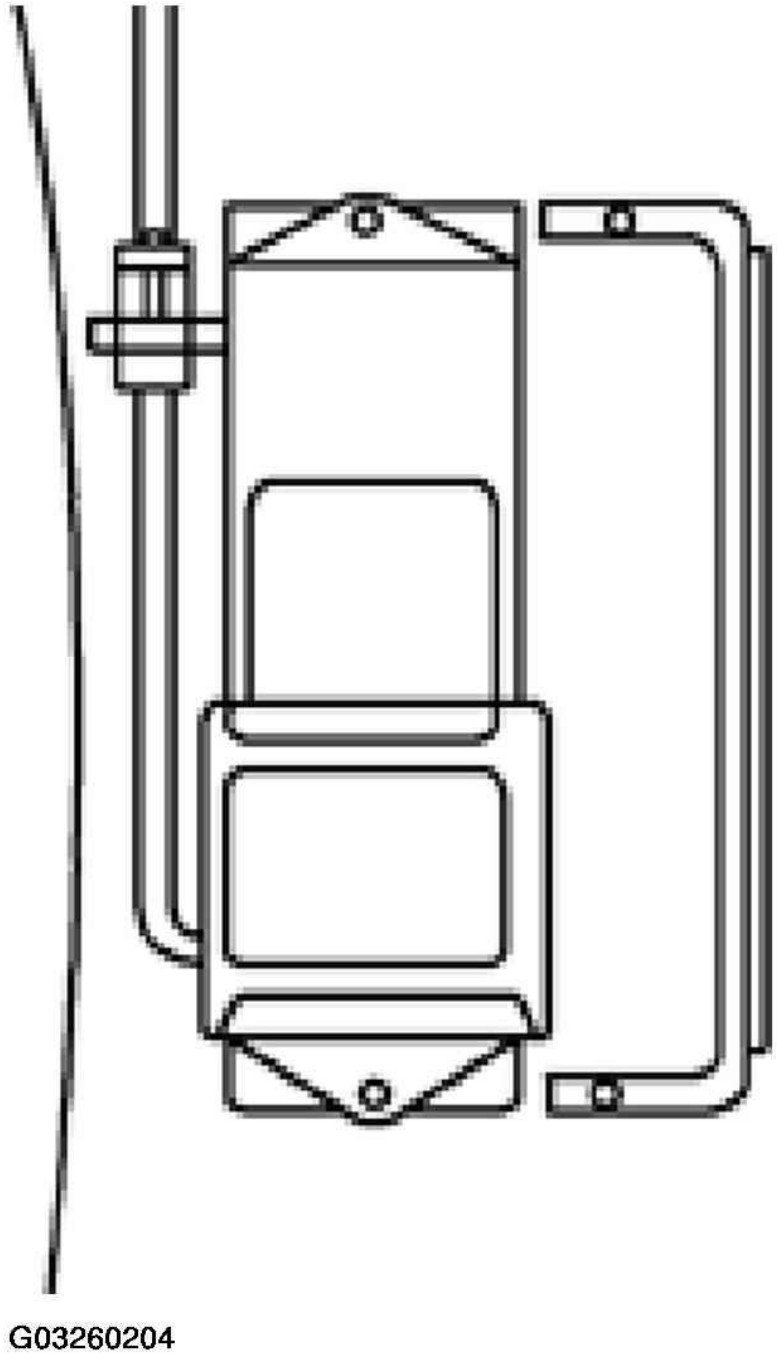


Fig. 79: Installing CD Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Secure with phillips screws on top.

- Code "Sound System" for CD operation using VAG 1551/1552 Scan Tool (ST), See **Code Control Module (function 07)**

NOTE: Radio/CD OBD function is inoperative if radio system is not coded for CD operation.

- Refer to Radio/CD changer owner's guide and check proper operation of CD changer.

CD CHANGER - FROM 08.02 PRODUCTION, INSTALLING AND REMOVING

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**
- **Disconnect negative (-) battery terminal.**
- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified.**

The following describes the factory approved service installation (and /or removal) of Volkswagen CD changers into all New Beetle models from 08.02 production, equipped with "Premium V" or "Premium V - Monsoon" radios and appropriate center console.

CD changer: 1J0 057110, Harness: 3B0 051 592B, Storage box/coin holder: 1C0 857 058A Parts catalog.

CAUTION:

- **Part numbers are for reference only. Always check with your Parts Department for the most up to date information.**
- **Always confirm CD changer and radio compatibility with your Parts Department.**

Removing previously installed unit

See **REMOVING** .

Installing

NOTE:

- **Carefully review all of the following instructions before proceeding with installation.**
- **Never install CD changer in a location, position, or manner other than specified by these instructions.**
- **Radio must be coded in order to support CD changer functions. After**

installing new CD unit, input appropriate radio coding using On Board Diagnostic program: "Code control module", function 07.

See Code Control Module (function 07) .

- **If the CD changer plays commercially available CDs, but not home recorded CDs, the CD changer is not malfunctioning. Replacement of the CD changer is not warranted.**
- **No mixed CDs (CDs with computer data and music stored together) can be played on the CD changer.**

Installed position

Central console under armrest.

CD preparation cable connection may be visible from top of central console with open armrest velour storage tray removed.

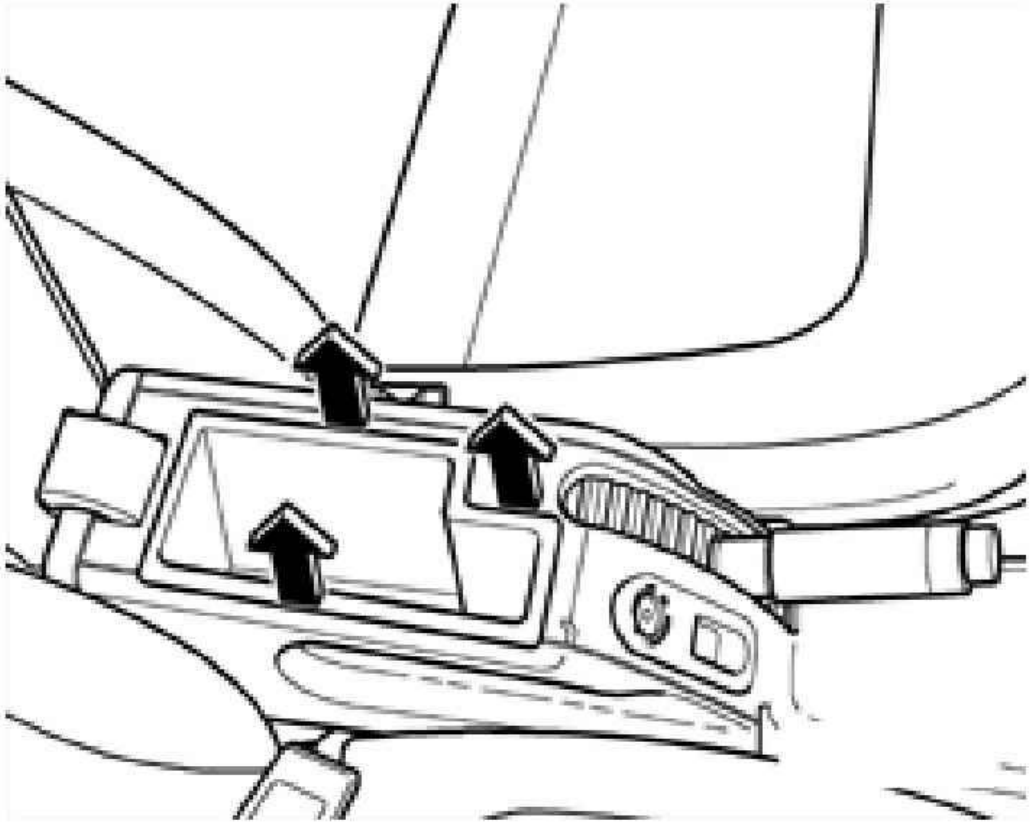
- Lift center armrest to fully open position.
- Remove velour tray by pulling upwards -arrows-.
- Open power outlet compartment or ashtray (where applicable) at rear of console and remove power outlet housing from mounting.
- Unplug power outlet cable by opening the top of the power outlet housing. Power outlet and housing will be completely released (no wires need to be unplugged separately when vehicle is equipped with ashtray).
- Remove rear cover lid from console

  See **STORAGE, COVERS AND TRIMS** .

- Move front passenger seat to its most forward position and tilt backrest forward.
- Remove right console side cover trim. See **STORAGE, COVERS AND TRIMS** .

  .

- Locate CD preparation cable inside center console.
- Insert coin holder/storage box -1- in small area vacated by velour tray. Flat border must face inwards.



G03260205

Fig. 80: Removing Velour Tray
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Then slide/lower CD changer -2- into opening until the mounting clips are felt to engage. Also note the following:

NOTE: CD changer installation orientation: CD slot faces passenger's seat, buttons face driver's seat.

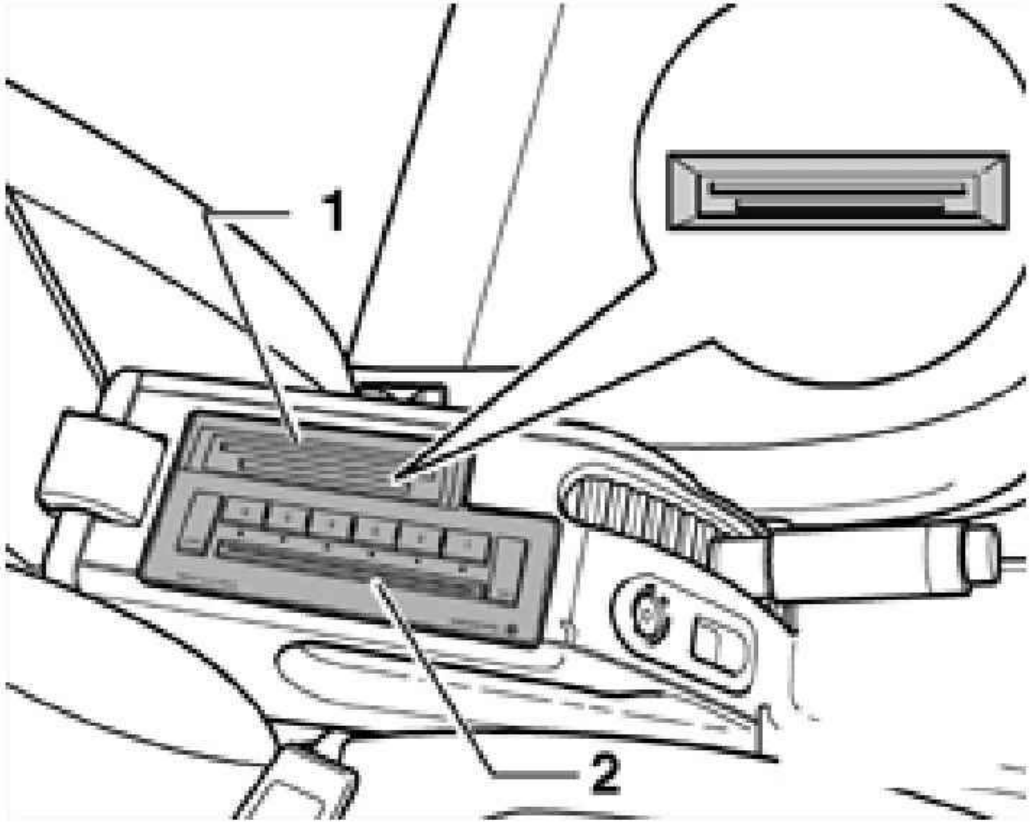


Fig. 81: Identifying Coin Holder/Storage Box
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Unclip and remove CD preparation terminal blank connection and discard.
- Use adapter cable to lengthen harness where applicable
- Connect CD changer harness connection -1- to CD preparation cable -2- located earlier.

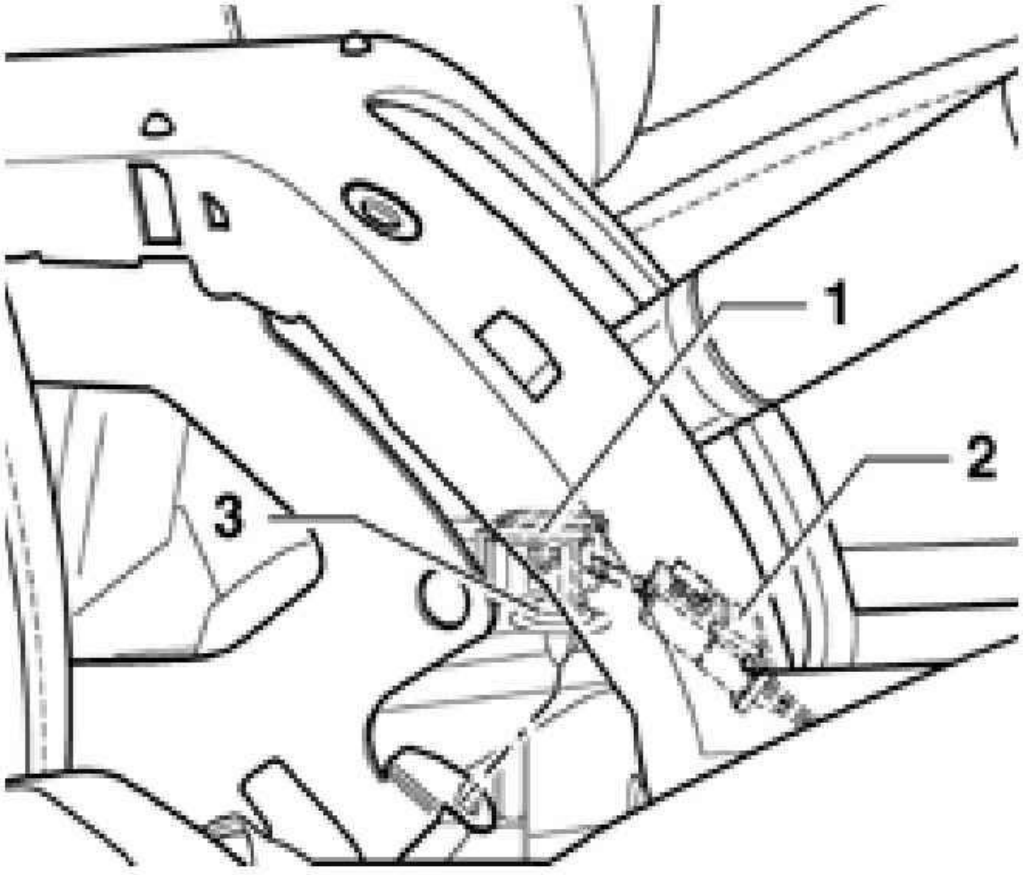


Fig. 82: Connecting CD Changer Harness Connection
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Attach completed connection -1- to clip -3-.

CAUTION:
- **Ensure proper electrical connection is made - check for terminal push-outs.**
- **In order to avoid noises and rattles, always ensure connector assembly with harness is properly secured.**

- Clip connector/clip assembly to inner console frame -1-.

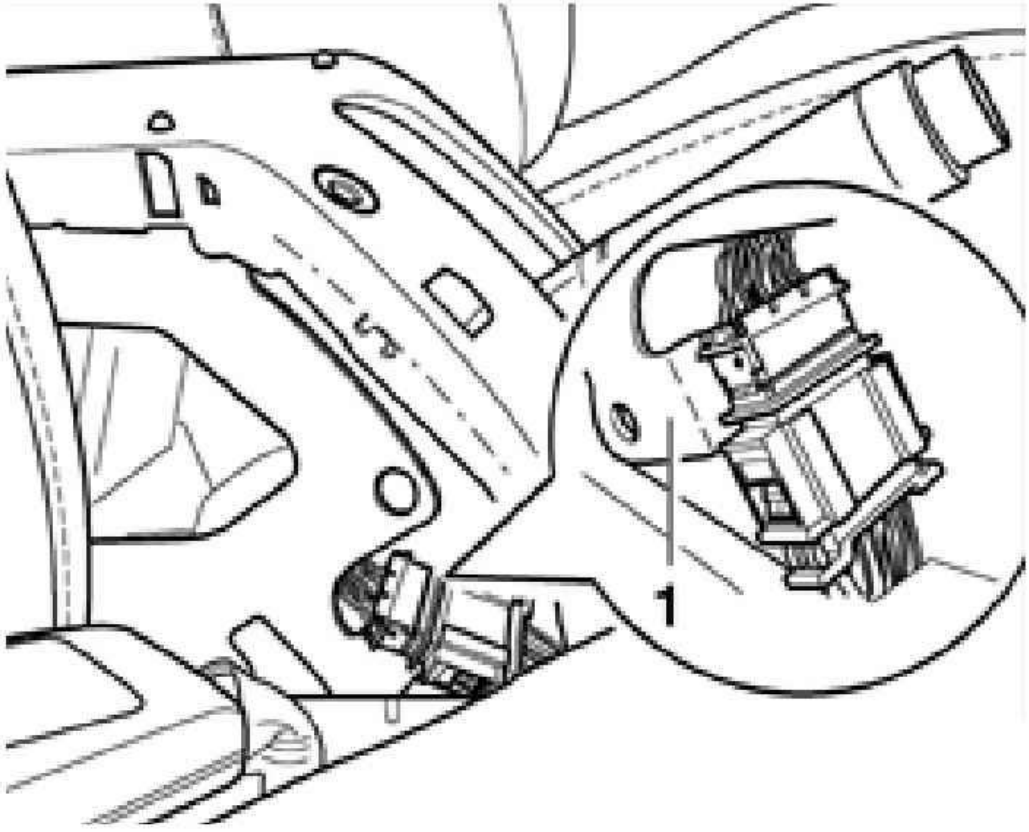


Fig. 83: Clip Connector/Clip Assembly To Inner Console Frame
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Continue with reassembly of all console-mounted components and trim in reverse order of removal
- Code "Sound System" for CD operation using VAG 1551/1552 Scan Tool (ST) **Radio system "Premium V" and "Premium V - Monsoon", On Board Diagnostic (OBD)**

NOTE: Radio/CD OBD function is inoperative if radio system is not coded for CD operation.

- Refer to Radio/CD changer owner's guide and check proper operation of CD changer.

Removing

Special tools, testers and auxiliary items needed.

- Radio removal tool 3316 (two identical pieces).

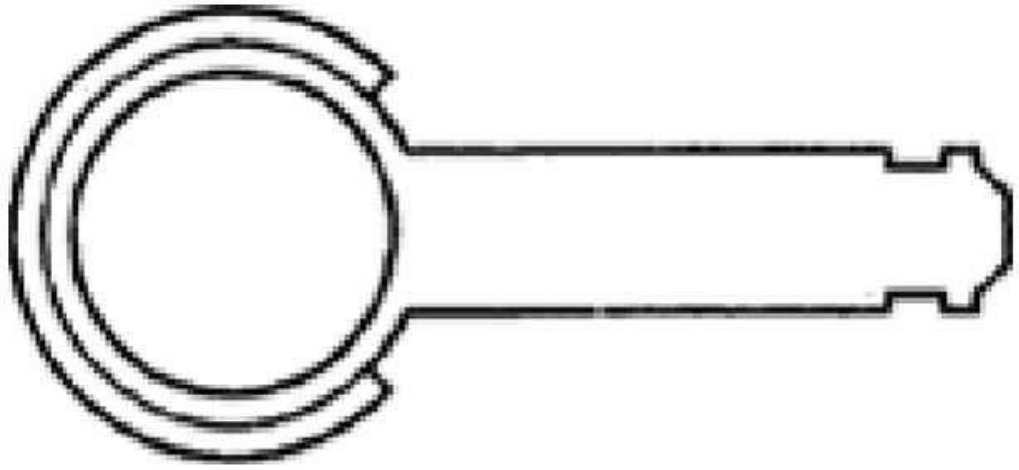


Fig. 84: Identifying Radio Removal Tool 3316
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Removing

- Insert CD changer removal tools into CD changer as illustrated -arrow- until they are felt to engage.

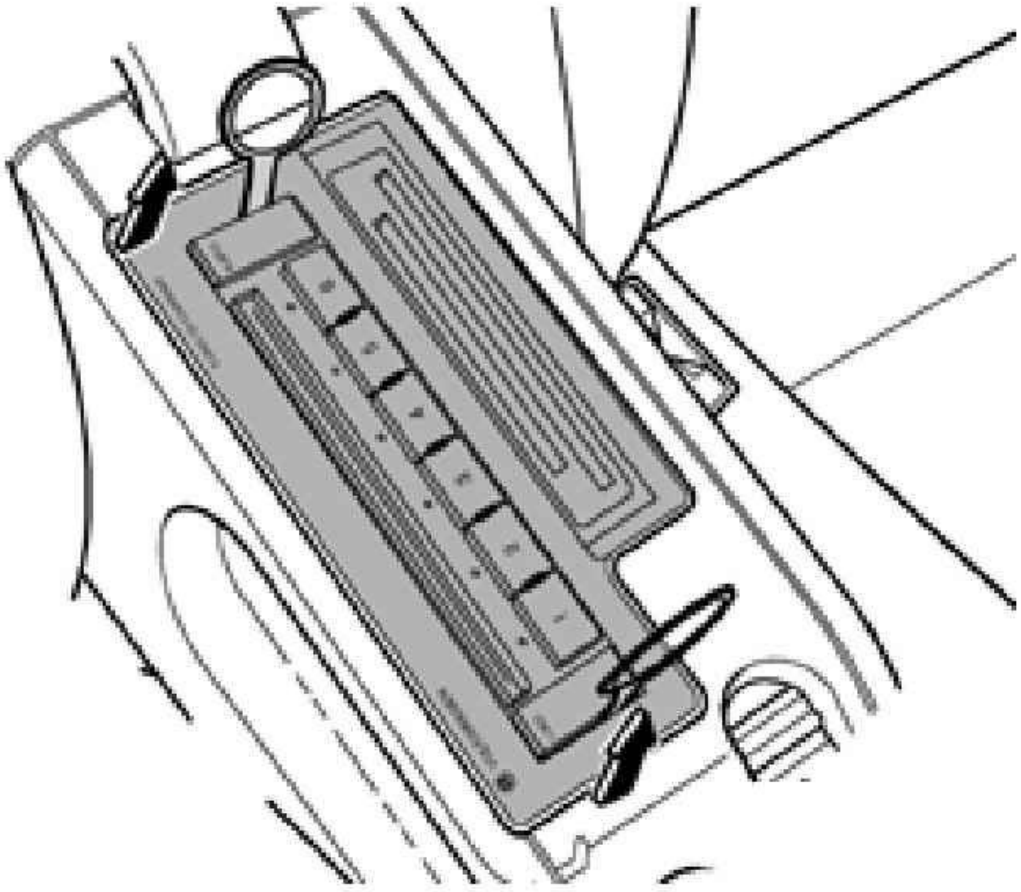


Fig. 85: Inserting CD Changer Removal Tools Into CD Changer
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Lift CD player from console using handles on tool 3316.
- If it is necessary to disconnect the electrical connections, remove right console side cover trim

  See **STORAGE, COVERS AND TRIMS** .

- Disconnect electrical harness connections.

TELEMATICS

GENERAL INFORMATION

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**
- **Disconnect negative (-) battery terminal.**
- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified.**

Before troubleshooting or servicing, technicians must be familiar with all telematics functions, operating specifics and the particular service plan which the customer subscribes to.

Refer to "Volkswagen Telematics by On Star(R)" Self Study Program (SSP) and "Volkswagen Telematics by OnStar(R) Owner's Manual and/or OnStar(R) "Quick Reference Guide" to become familiar with applicable features and functions.

Telematics, technical features

Telematics is an in-vehicle communication system that uses cellular and Global Positioning System (GPS) technologies to provide the customer with safety, security and convenience services.

GPS is a "constellation" of 24 satellites that orbit the earth and constantly broadcast radio signals. The Telematics/Telephone Control Module receives GPS data, decodes it, and transmits the vehicle's location to the service provider's call center via the national cellular network.

Telematics services for Volkswagen customers are provided by On Star(R) via a dedicated call center. Service plans may provide route directions and concierge services as well as emergency or vehicle repair services. For details, See Volkswagen Telematics by OnStar(R); Owner's Manual.

Utilization of available Telematics services/features take place via customer's voice control, See Volkswagen Telematics by OnStar(R); Owner's Manual.

Upon customer request, the Volkswagen Telematics by OnStar(R) call center can remotely perform or activate the following vehicle functions:

- Lock vehicle
- Unlock vehicle
- Activate Hazard Lights
- Activate horn

During events where the Airbag Control Module processes a crash signal, the vehicle hazard lights are activated and the doors are unlocked via the respective door control modules. In addition, the telematics system automatically places an emergency call to the OnStar(R) call center.

Telematics hardware includes the driver operated telematics control head (which contains the OnStar(R) control buttons and telematics indicator lamp), microphone, roof mounted GPS/Cellular antenna and Telematics/Telephone Control Module (with supporting software) and related wiring.

All telematics components are factory installed/integrated into the vehicle electrical system.

Telematics system/component overview, see **Telematic system, component overview** .

ON BOARD DIAGNOSTIC (OBD)

The telematics system has extensive On Board Diagnostic (OBD) capabilities.

The Telematics/Telephone Control Module has a Diagnostic Trouble Code (DTC) memory. If a malfunction occurs in one of the components or wires which is monitored by the system, a record of the type of malfunction is stored in DTC memory. OBD program functions are performed using VAS 5051 Vehicle Diagnostic Testing and Information System in mode "Guided Fault Finding".

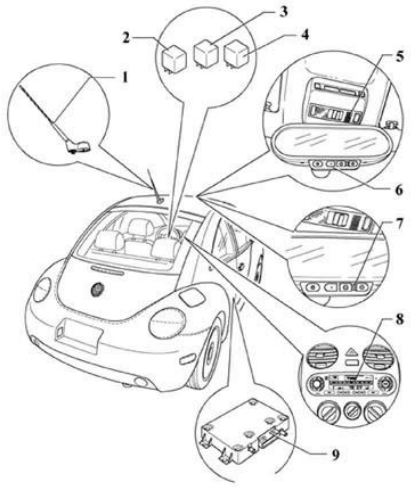
TELEMATIC SYSTEM, COMPONENT OVERVIEW

NOTE: The following list refers to items in Fig. 86 .

1. **Antenna -R11-, Antenna Amplifier -R24- and Antenna for Navigation System (GPS) -R50-**
   - On roof, rear
   - Removing and installing, See **GPS/Telematics antenna, removing and installing** .
2. **Dual Horn Auxiliary Relay -J733-**
   - On 13-position auxiliary relay panel, above relay panel.
3. **Auxiliary Emergency Flasher Relay -J517-**
   - On 13-position auxiliary relay panel, above relay panel.
4. **Warning Lamp Auxiliary Relay -J734-**
   - On 13-position auxiliary relay panel, above relay panel.
5. **Telephone Microphone -R38-**
   - Integrated with front interior light module.
   - Removing and installing, See **TELEPHONE MICROPHONE -R38-, REMOVING AND INSTALLING** .
6. **Telematic Control Head -E264-**
   - Integrated with rear view mirror.
   - OnStar(R) buttons, description, See **TELEMATIC CONTROL HEAD - ONSTAR(R) CONTROL BUTTONS, DESCRIPTION** .
   - Includes telematics indicator lamp -7-.
   - Removing and installing, See **TELEMATIC CONTROL HEAD -E264-, REMOVING AND INSTALLING** .
7. **Telematics Indicator Lamp -K186-**

- In Telematic Control Head.
- LED indicates telematic system operational status. Description, See **TELEMATIC CONTROL HEAD - ONSTAR(R) TELEMATICS INDICATOR LAMP, DESCRIPTION** .
- Telematic system, troubleshooting using telematics indicator lamp, See **TELEMATICS SYSTEM, TROUBLESHOOTING USING TELEMATICS INDICATOR LAMP** .

8. **Radio -R-**
    - In center console.
9. **Telematic Control Module -J499-**
    - Installed behind right rear side panel trim under rear speaker.
    - Removing and installing, See **TELEMATIC CONTROL MODULE -J499-, REMOVING AND INSTALLING** .
    - Control module multi-pin connector terminal assignments, See **TELEMATIC CONTROL MODULE -J499- MULTI-PIN CONNECTOR ASSIGNMENTS** .



1 - Antenna -R11-, Antenna Amplifier -R24- and Antenna for Navigation System (GPS) -R50-

- On roof, rear
- Removing and installing

2 - Dual Horn Auxiliary Relay -J733-

- On 13-position auxiliary relay panel, above relay panel.

3 - Auxiliary Emergency Flasher Relay -J517-

- On 13-position auxiliary relay panel, above relay panel.

4 - Warning Lamp Auxiliary Relay -J734-

- On 13-position auxiliary relay panel, above relay panel.

5 - Telephone Microphone -R38-

- Integrated with front interior light module.
- Removing and installing

6 - Telematic Control Head -E264-

- Integrated with rear view mirror.
- OnStar® buttons, description
- Includes telematics indicator lamp -7-.
- Removing and installing

7 - Telematics Indicator Lamp -K186-

- In Telematic Control Head.
- LED indicates telematic system operational status. Description
- Telematic system, troubleshooting using telematics indicator lamp

8 - Radio -R-

- In center console.

9 - Telematic Control Module -J499-

- Installed behind right rear side panel trim under rear speaker.
- Removing and installing
- Control module multi-pin connector terminal assignments

G03260211

Fig. 86: Identifying Telematic System Component
Courtesy of VOLKSWAGEN UNITED STATES, INC.

TELEMATIC CONTROL HEAD - ONSTAR(R) CONTROL BUTTONS, DESCRIPTION

The telematics control head is integrated to the interior rear view mirror. The control head contains three separate buttons as well as a system telematics indicator lamp (LED).

The OnStar(R) ("On*") button is used to contact the OnStar(R) call center to request various convenience services. It is also used to initialize/activate the owner's subscription to OnStar(R) services and/or update the customer's account in the event that the Telephone/Telematics Control Module requires replacement.

The Emergency button is used to contact the OnStar(R) call center to request emergency services such as fire department, police etc.

The Communication ("DOT") button is used to end a call to the OnStar(R) call center, place or answer personal calls or cancel a call if one of the other buttons is accidentally pressed.

NOTE: Use of certain OnStar(R) services requires a subscriber's Personal Identification Number(s) (PIN).

For complete system operation details, See Volkswagen Telematics by OnStar(R) & Owner's Manual.

TELEMATIC CONTROL HEAD - ONSTAR(R) TELEMATICS INDICATOR LAMP, DESCRIPTION

The telematics indicator lamp is located between the OnStar(R) and Emergency buttons. The green light comes on after a self-check routine is performed (approx. 10-15 seconds after ignition is switched on).

Indications:

- Green: Indicates system has passed self-test and is ready to place or receive calls. Light remains on even in areas without cellular coverage.
- Blinking green: Indicates a call has been initiated or is in progress.
- Red: Indicates system has not passed self-test or indicates system malfunction.

NOTE: Additional information and system troubleshooting using telematics indicator lamp, See TELEMATICS SYSTEM, TROUBLESHOOTING USING TELEMATICS INDICATOR LAMP .

TELEMATIC CONTROL HEAD -E264-, REMOVING AND INSTALLING

NOTE: Before beginning repairs on the electrical system, disconnect battery! See BATTERY, DISCONNECTING AND RECONNECTING .

Removing

- Remove Interior rear view mirror

  See **INTERIOR REAR VIEW MIRROR, REMOVING AND INSTALLING** .

CAUTION: Telematic control head buttons cannot be removed, dismantled or serviced separately. Should malfunctions occur, replace complete control head.

Installing

Install in reverse order of removal.

- Check telematic system coding and recode if necessary, See **TELEMATIC CONTROL MODULE -J499-, CODING** .

TELEMATIC CONTROL MODULE -J499-, REMOVING AND INSTALLING

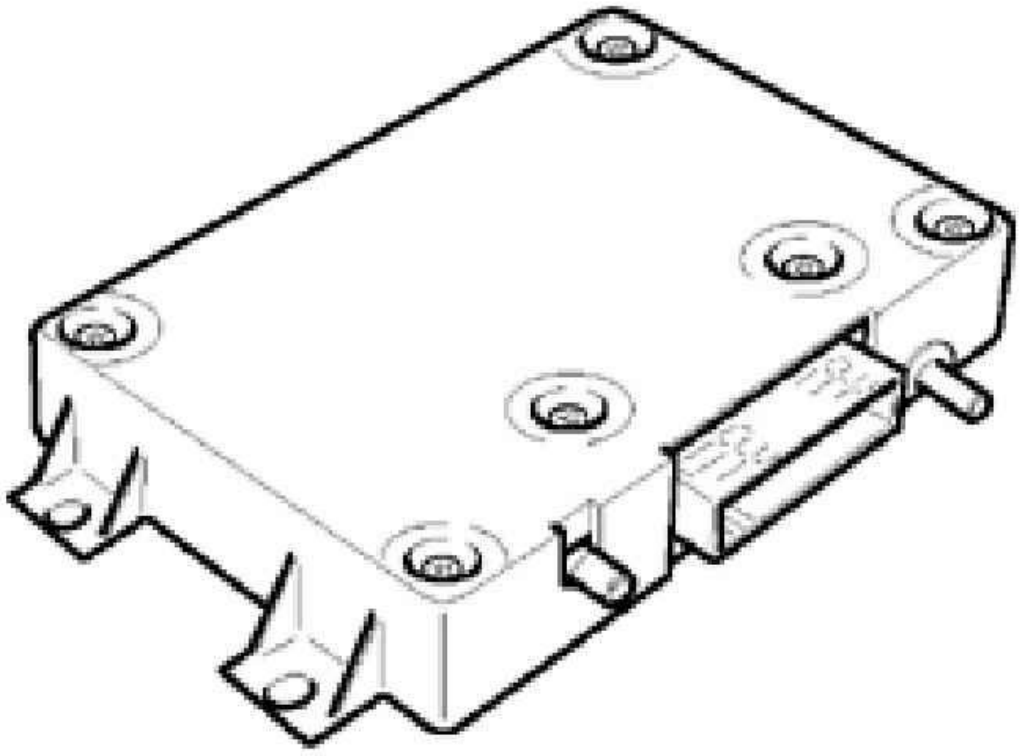


Fig. 87: Telematic Control Module
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **If the telematic control module is replaced, the OnStar(R) system needs to**

be reconfigured, See TELEMATIC CONTROL MODULE -J499-, RECONFIGURING .

- **DO NOT exchange Telephone/Telematic Control Modules between vehicles! Each module contains specific Station Identification (STID) and Electronic Serial Number (ESN) data unique to the VIN. This data is used by OnStar(R) and National Cellular Telephone Network to identify the vehicle and administer the customer's account.**
- **Using the VAS 5051 Vehicle Diagnostic Testing and Information system in operating mode "Guided Fault Finding, and function" -J499- Telematic control module, replacing" it is possible to read the telematic control module coding from the existing module before removal. Note code prior to removal in order input code into replacement control module.**

Removing

NOTE: Before beginning repairs on the electrical system, disconnect battery! See BATTERY, DISCONNECTING AND RECONNECTING .

- Remove right rear side panel trim

  See **SIDE PANEL TRIM, REMOVING AND INSTALLING** .

- Remove speaker retaining bracket -1-.
- Disconnect electrical connector behind speaker -2-.

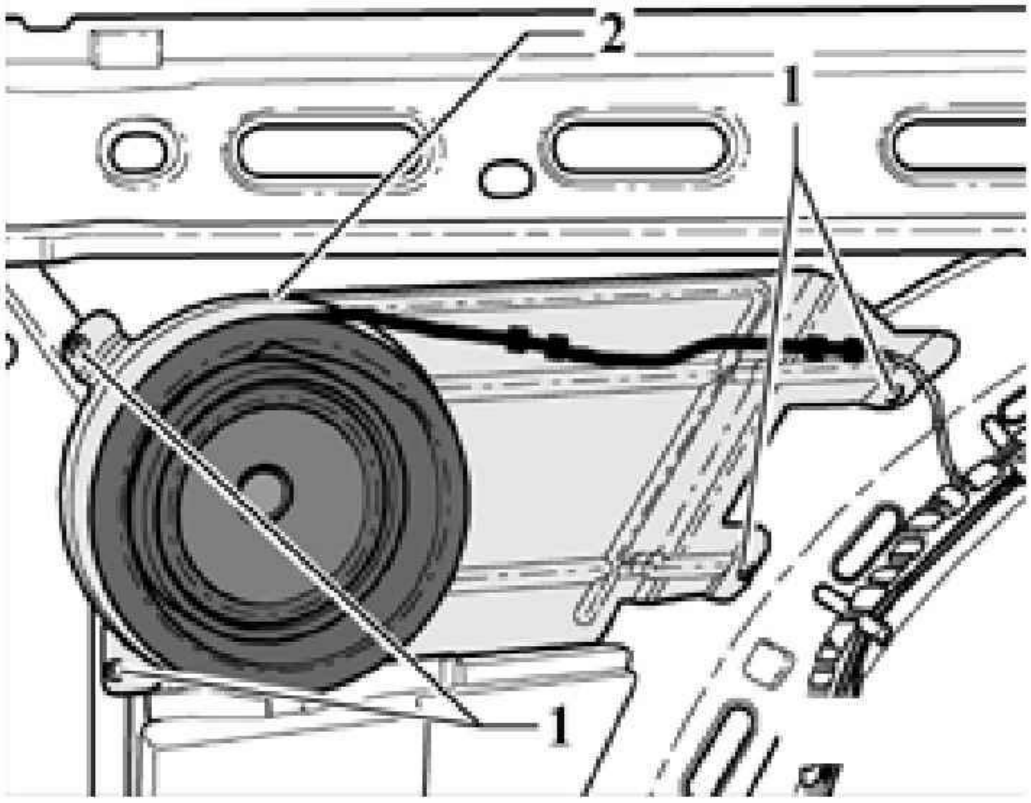


Fig. 88: Removing Speaker Retaining Bracket
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Pull out protective shield -1- inserted under speaker

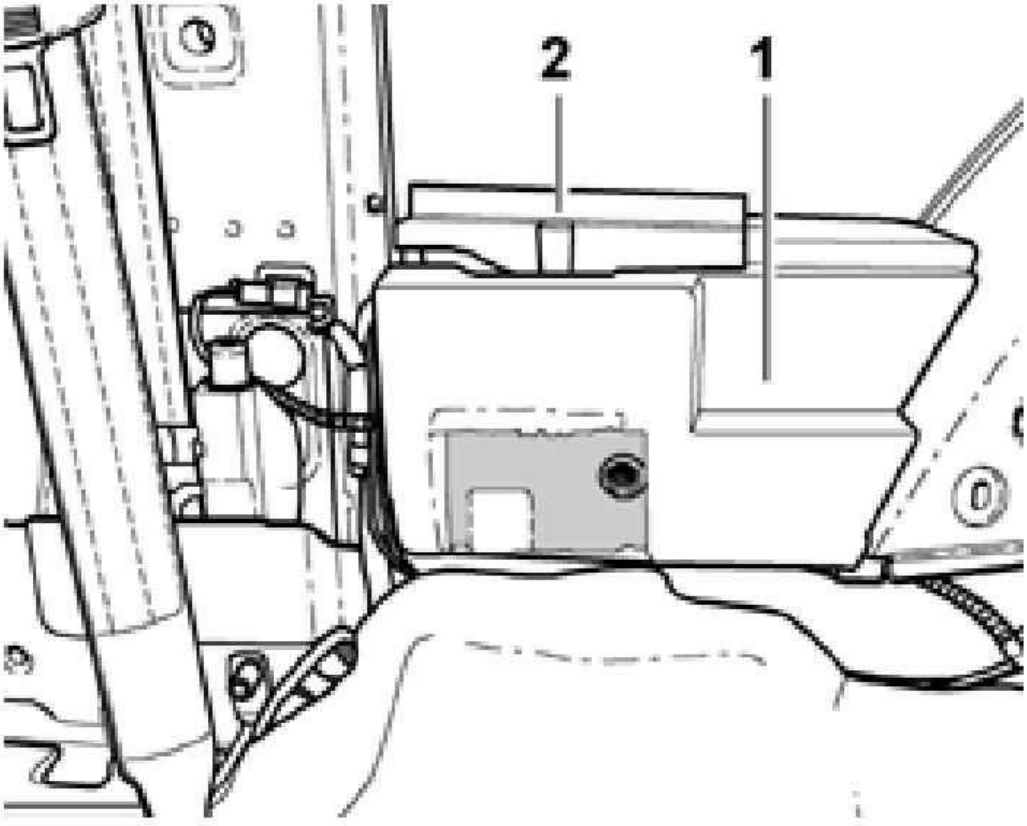


Fig. 89: Removing Protective Shield Inserted Under Speaker
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Pull out lid -2- from protective shield
- First disconnect 42-pin connection -2- from control module, as follows:

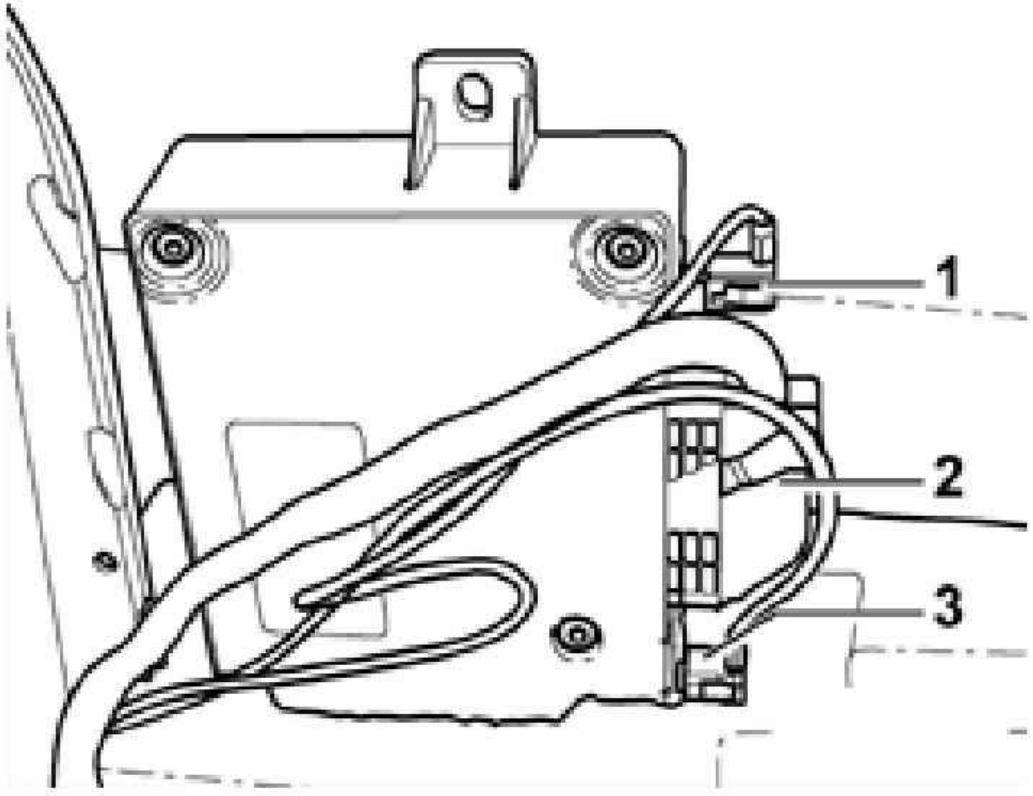


Fig. 90: Disconnecting 42-Pin Connection From Control Module
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Depress clip and slide locking lever
- Then disconnect antenna cable connections -1- and -3- from control module.

Installing

Install in reverse order of removal, noting the following:

If telematics control module was replaced:

- Code telematics control module, See **TELEMATIC CONTROL MODULE -J499-, CODING** .
- Reconfigure telematics system for OnStar(R) functions, See **TELEMATIC CONTROL MODULE -J499-, RECONFIGURING** .

TELEMATIC CONTROL MODULE -J499- MULTI-PIN CONNECTOR ASSIGNMENTS

42 pin multi-connector -T42-

NOTE: The following list refers to items in Fig. 91 .

1. Signal activation - Dual Horn Auxiliary Relay
2. Signal activation - "lock vehicle"
3. Cellular telephone connection -Audio in (not used)
4. Cellular telephone connection - Battery Feedback(not used)
5. Cellular telephone connection - Ground (GND)
6. Cellular telephone connection - TXD-transfer (not used)
7. Cellular telephone connection - RTS (not used)
8. Cellular telephone connection - shielding Ground (GND) (not used)
9. not used
10. Line (+) Output to radio
11. Auxiliary speaker (+) (not used)
12. Telephone microphone (+)
13. K-wire, Data Link Connector (DLC)
14. Power supply - Terminal 15
15. Telematic indicator LED "red" (in Telematic Control Head)
16. Telematic indicator LED "green" (in Telematic Control Head)
17. not used
18. Ground (GND) (Terminal 31)
19. Ground (GND) (Terminal 31)
20. not used
21. not used
22. Signal activation - Auxiliary Emergency Flasher Relay
23. Signal activation - "unlock vehicle"
24. Cellular telephone connection - Audio out (not used)
25. Cellular telephone connection - Audio Ground (GND) (not used)
26. Cellular telephone connection - power supply (not used)
27. Cellular telephone connection - RXD (not used)
28. Cellular telephone connection - RTS (not used)
29. Signal status - Telephone (not used)
30. not used
31. Line (-) Output to radio
32. Auxiliary speaker (-) (not used)
33. Telephone microphone (-)
34. Mute - Radio

35. Input "SOS" from telematic control head
36. Input "Power" from telematic control head
37. not used
38. Crash-Signal from airbag control module
39. Terminal 30 (B+)
40. Terminal 30 (B+)
41. Emergency (backup) battery (+) (not used)
42. Emergency (backup) battery (-) (not used)

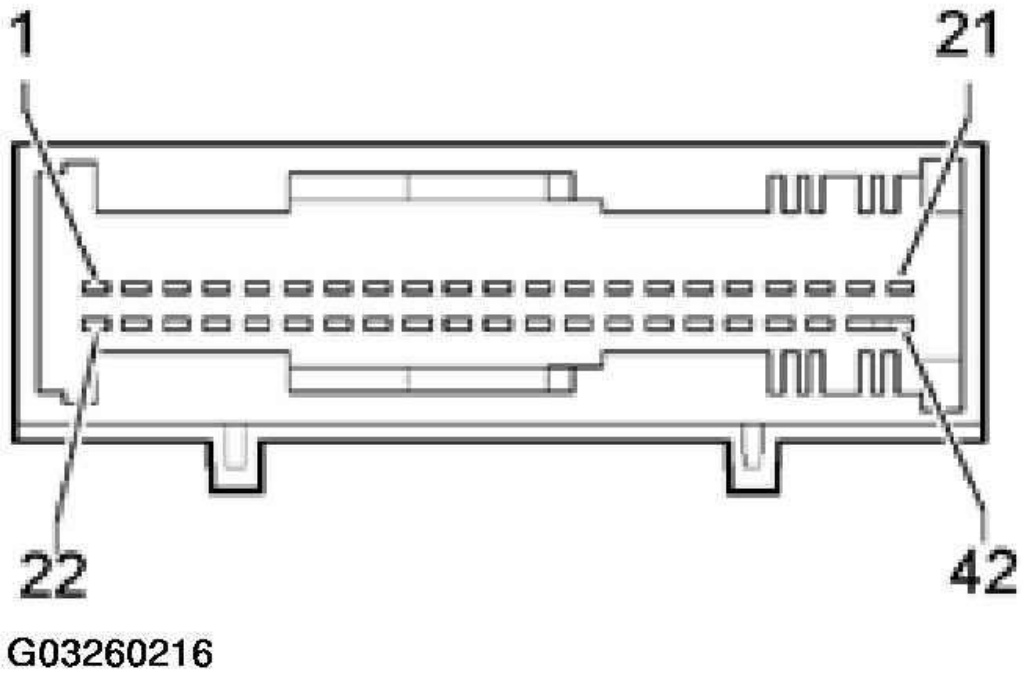


Fig. 91: Identifying 42-Pin Multi-Connector -T42- Terminals
Courtesy of VOLKSWAGEN UNITED STATES, INC.

TELEMATIC CONTROL MODULE -J499-, CODING

After replacing the Telematic Control Module, the control module must be coded and OnStar(R) system needs to be reconfigured.

Special tools, testers and auxiliary items needed

- VAS 5051 Vehicle Diagnostic Testing and Information System

- Cable adapter VAS 5051/5a or VAS 5051/6a

Telematic Control Module -J499-, coding

NOTE:

- **DO NOT exchange Telephone/Telematic Control Modules between vehicles! Each module contains specific Station Identification (STID) and Electronic Serial Number (ESN) data unique to the VIN. This data is used by OnStar(R) and National Cellular Telephone Network to identify the vehicle and administer the customer's account.**
- **Using the VAS 5051 Vehicle Diagnostic Testing and Information system in operating mode "Guided Fault Finding, and function" -J499- Telematic control module, replacing" it is possible to read the telematic control module coding from the existing module before removal. Note code prior to removal in order input code into replacement control module.**

- Connect VAS 5051 with adapter cable to Data Link Connector (DLC) and select mode "Guided Fault Finding"
- Enter appropriate model, equipment and model year information and press ">" to confirm.

Fig. 92: Identifying VAS 5051 Vehicle Diagnostic Testing And Information System
Courtesy of VOLKSWAGEN UNITED STATES, INC.

After all Control Modules have been registered and DTC memories checked:

- Select "Go to"
- Select "Function / Component Selection"
- Select "Body"
- Select "Electrical System

- Select "01 -Systems capable of self-diagnosis"
- Select "Telematics NAR"
- Select "Functions - Telematics NAR" and press ">" to confirm.
- Select "Telematics control module, coding"
- Follow testers prompts.

TELEMATIC CONTROL MODULE -J499-, RECONFIGURING

After replacing the Telematic Control Module, the control module must be coded and OnStar(R) system needs to be reconfigured as described below. Have the VIN and customer details on hand.

Special tools, testers and auxiliary items needed

- VAS 5051 Vehicle Diagnostic Testing and Information System
- Cable adapter VAS 5051/5a or VAS 5051/6a

NOTE:

- **DO NOT exchange Telephone/Telematic Control Modules between vehicles! Each module contains specific Station Identification (STID) and Electronic Serial Number (ESN) data unique to the VIN. This data is used by OnStar(R) and National Cellular Telephone Network to identify the vehicle and administer the customer's account.**
- **Failure to reconfigure the control module after replacement will prevent OnStar(R) services and features from functioning, and will result in a customer return for repair.**

Prerequisite

- Telematics control module is coded, See **TELEMATIC CONTROL MODULE -J499-, CODING** .

Reconfiguration

Fig. 93: Identifying VAS 5051 Vehicle Diagnostic Testing And Information System
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Where applicable, carefully record the 8 character Station Identification (STID) number and Electronic Serial Number (ESN) from labels on replacement module.
- Connect VAS 5051 with adapter cable to Data Link Connector (DLC) and select mode "Guided Fault Finding"
- Enter appropriate model, equipment and model year information and press ">" to confirm.

After all Control Modules have been registered and DTC memories checked, see "Continued for all".

If the STID number and ESN DO NOT appear on labels on the new control module, proceed as follows:

- Select "Go to"
- Select "Function / Component Selection"
- Select "Body"
- Select "Electrical System
- Select "01 -Systems capable of self-diagnosis"
- Select "Telematics NAR" (Display may appear as "Telematics")
- Select "Functions - Telematics NAR" and press ">" to confirm.
- Select "Check control module versions -Telematics NAR".
- Record ESN and STID number from appropriate display fields.

Continued for all:

- Select "Go to"
- Select "Function / Component Selection"
- Select "Body"
- Select "Electrical System
- Select "01 -Systems capable of self-diagnosis"
- Select "Telematics NAR" (Display may appear as "Telematics")
- Select "Functions - Telematics NAR" and press ">" to confirm.
- Select "check/erase DTC memory Telematics NAR"
- Switch off ignition and wait a few moments.
- Switch on ignition.
- Enter address word 75 - "Telematics"
- Select "Go to"
- Select "Function / Component Selection"
- Select "Body"
- Select "Electrical System
- Select "01 -Systems capable of self-diagnosis"
- Select "Telematics NAR"
- Select "Functions - Telematics NAR" and press ">" to confirm.
- Select "check DTC memory - Telematics NAR".

No DTCs must be present.

- Check and confirm the green telematics indicator lamp in Telematics Control Head is on.

- Exit operating mode "Guided Fault Finding".
- Disconnect VAS 5051 from DLC.

- Drive vehicle outside to area away from tall buildings, and with no overhead obstructions (trees, bridges, etc.).
- Press the blue OnStar(R) ("On*") button. A recorded introduction will be heard.
- Press the "On*" button again at any time during the recording (it is not necessary to wait for the recording to finish).
- When an OnStar(R) call center advisor answers, identify yourself as a Volkswagen Technician, and that you have replaced the "Vehicle Communications Interface Unit (VCIM)".
- Supply advisor with STID number and ESN from new module. Supply the VIN and customer details if necessary.
- The advisor will guide you through the system reconfiguration and update of the customer's account.
- When reconfiguration is complete, end call by pressing the Communications ("DOT") button.
- Wait ten minutes and press the "On*" button again to verify system operation. Inform call center advisor you are a Volkswagen Technician performing a quality check after VCIM replacement/system reconfiguration.
- End call by pressing the Communications ("DOT") button.

NOTE:

- **Normal connection time is 10 - 15 seconds. However, depending on local cellular/GPS conditions, making a connection could take up to three minutes. Be patient.**
- **If the message: "unable to contact OnStar" is heard, try relocating vehicle to a more elevated or open area and repeat connection attempts. Depending on the local cellular/GPS traffic conditions, several connection attempts may be necessary (and are normal).**
- **If the message: "OnStar request ended" is heard, the cellular connection was interrupted before the connection was completed. Wait for a short period of time before repeating connection attempt.**
- **If you are still unable to connect, call OnStar(R) Customer Care at 1-888-390-4050. The advisor will verify the customer's OnStar(R) account is active.**

GPS/TELEMATICS ANTENNA

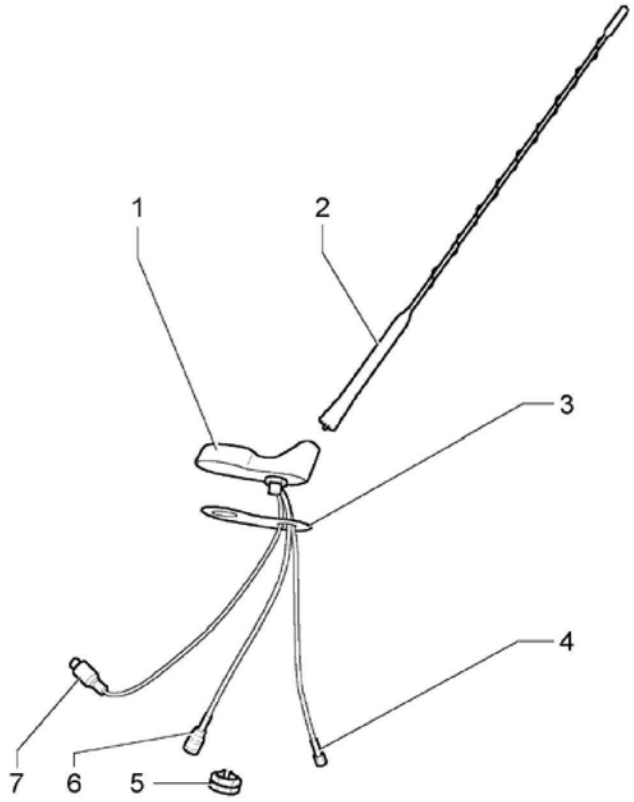
Models with Telematics are equipped with "triplex" type antennas mounted to the rear portion of the roof.

These antennas process signals for the radio as well as telematics/GPS functions.

GPS/TELEMATICS ANTENNA, OVERVIEW

NOTE: The following list refers to items in Fig. 94 .

1. **Antenna base**
2. **Antenna mast**
3. **Gasket**
4. **Antenna connection - Navigation (GPS)**
    - Threaded
5. **Hex nut**
6. **Antenna connection - Radio**
    - Plug
    - Black
7. **Antenna connection - Telematics**
    - Plug
    - Grey



1 - Antenna base

2 - Antenna mast

3 - Gasket

4 - Antenna connection
- Navigation (GPS)

- Threaded

5 - Hex nut

6 - Antenna connection
- Radio

- Plug
- Black

7 - Antenna connection
- Telematics

- Plug
- Grey

G03260219

Fig. 94: Exploded View Of GPS/Telematics Antenna
Courtesy of VOLKSWAGEN UNITED STATES, INC.

GPS/TELEMATICS ANTENNA, REMOVING AND INSTALLING

CAUTION: Before beginning repairs on the electrical system:

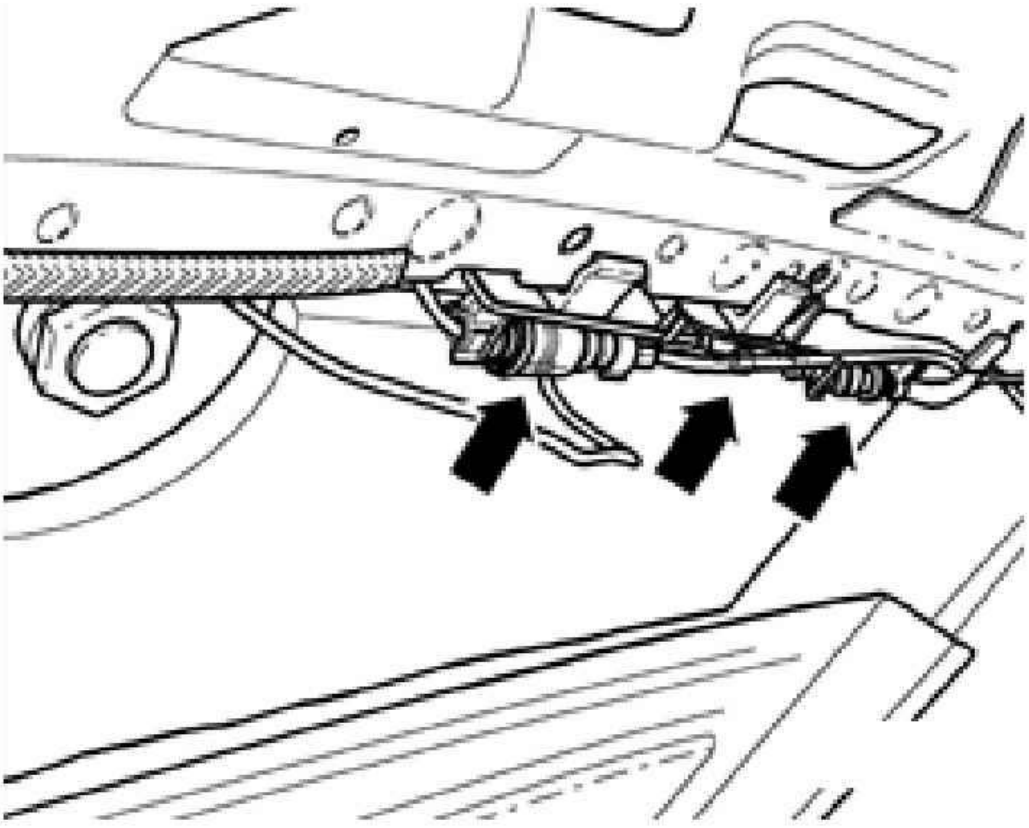
- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**

Removing

- Unclip rear headliner trim and left/right C-pillar trim

  See **PILLARS AND SIDE TRIMS** and **PILLARS AND SIDE TRIMS (CONVERTIBLE)** .

- Carefully lower headliner at rear slight in order to access antenna cables etc.
- Unclip cable connections -arrows- from roof and separate connections.



G03260220

Fig. 95: Removing Cable Connections From Roof
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove nut -2- and remove antenna.

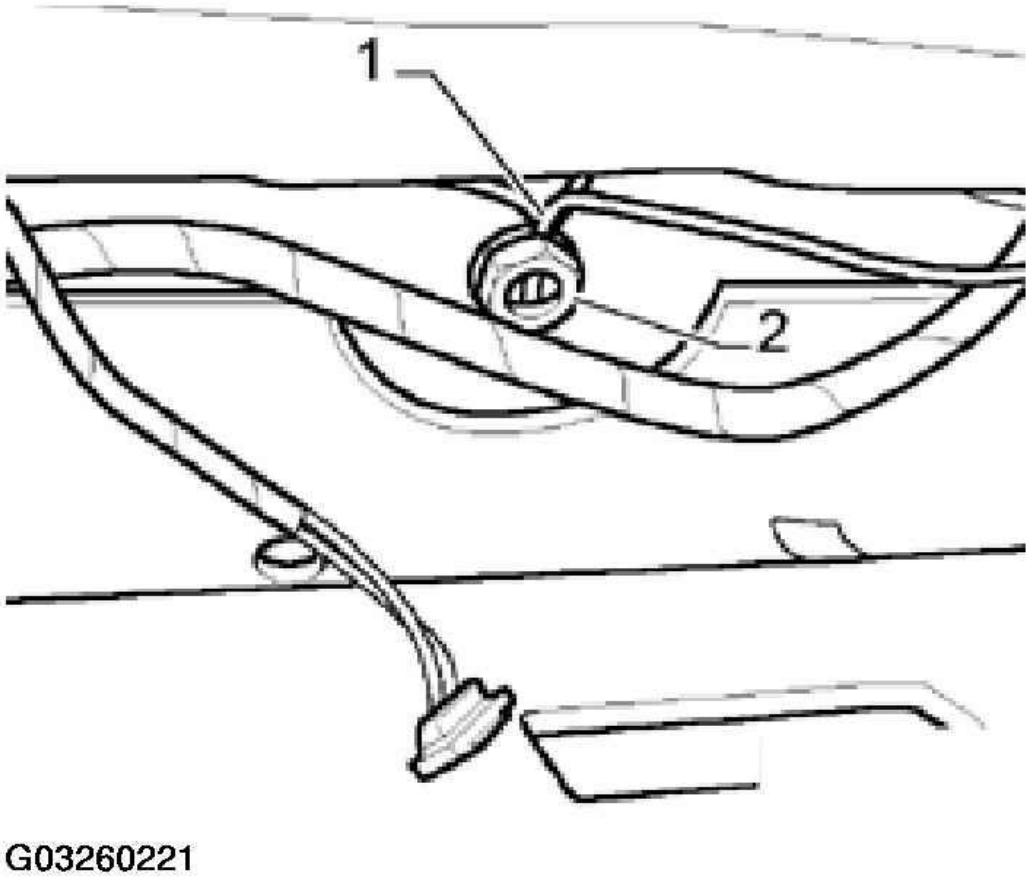


Fig. 96: Removing Antenna Nut
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Installing

Install in reverse order of removal, noting the following:

- Ensure gasket is properly oriented in relation to relief areas -arrows- on antenna base

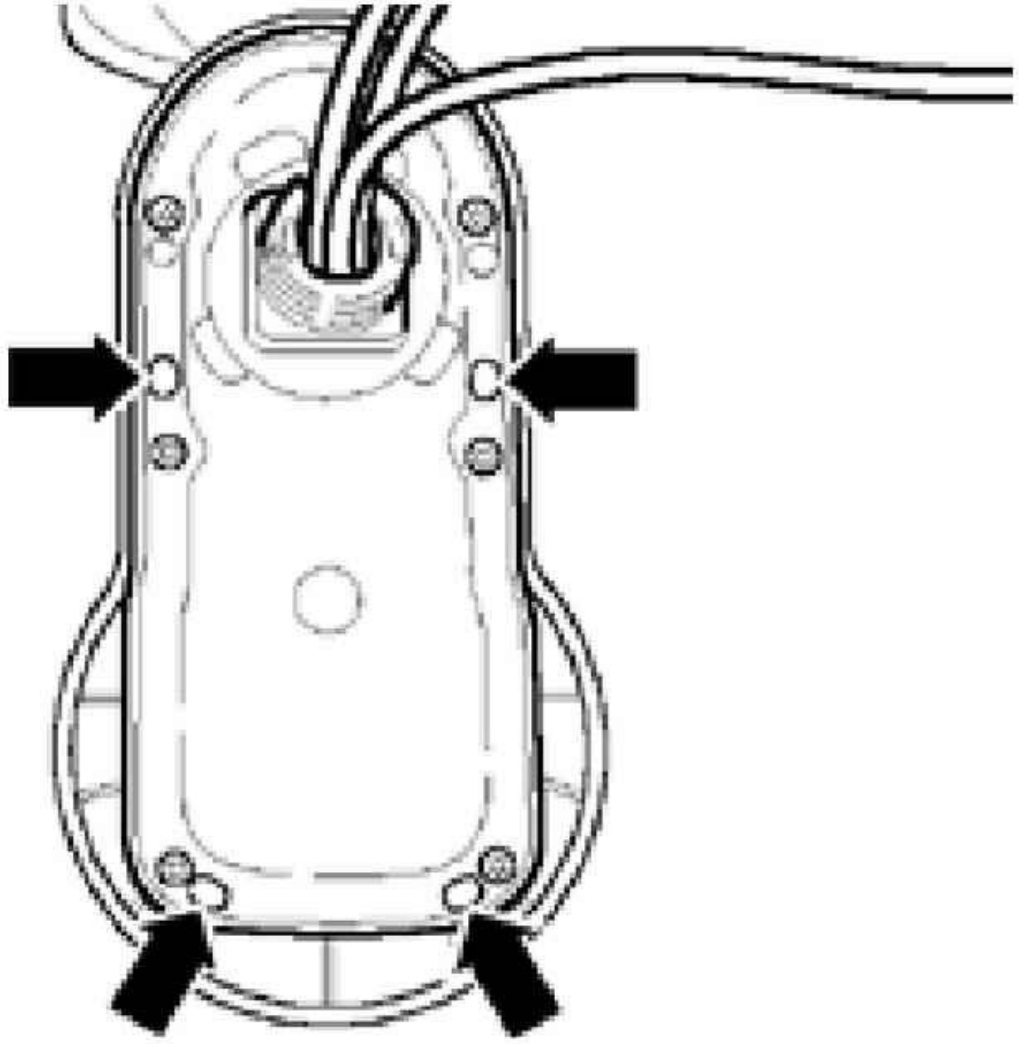


Fig. 97: Installing Gasket On Antenna Base
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Ensure stress free routing of antenna cables -1- through nut -2-.
- Apply contact grease in area where nut/serrated washer contacts roof sheet metal.

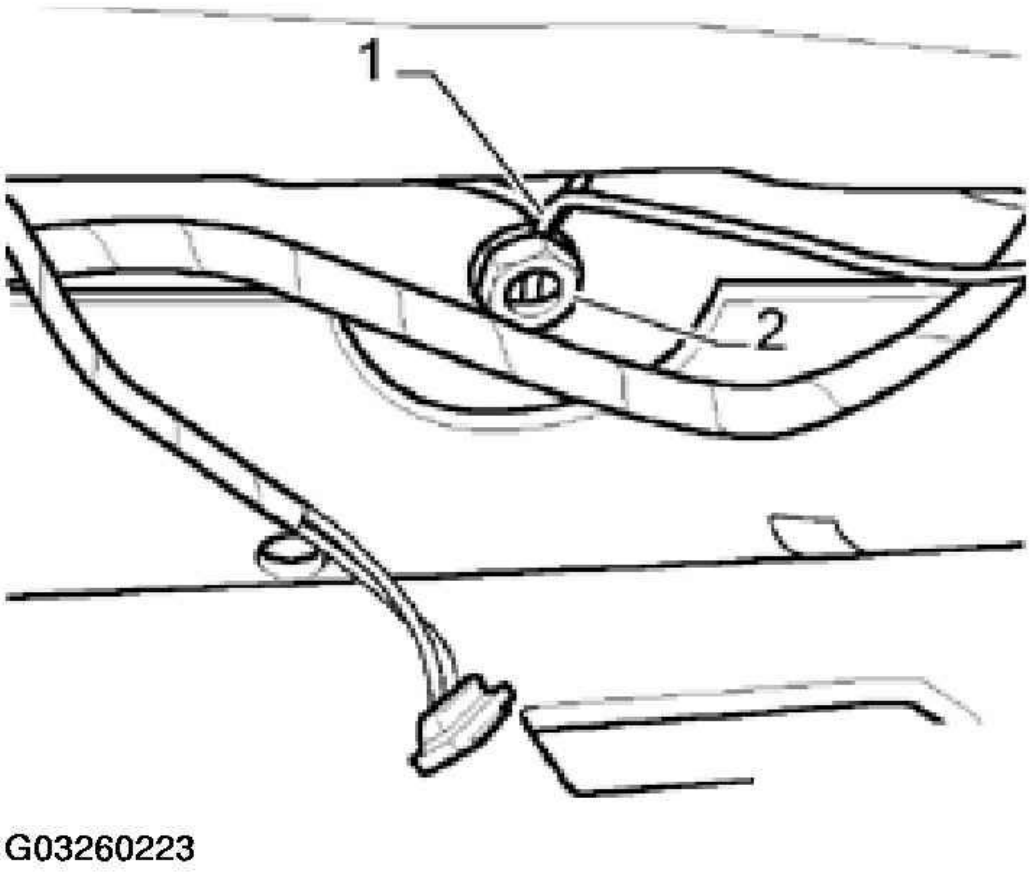


Fig. 98: Installing Antenna Cables Nut
Courtesy of VOLKSWAGEN UNITED STATES, INC.

TELEPHONE MICROPHONE -R38-, REMOVING AND INSTALLING

Telephone Microphone -R38- is integrated with the interior rear view mirror and cannot be removed or serviced separately.

Removing

- Remove interior rear view mirror

  See **INTERIOR REAR VIEW MIRROR, REMOVING AND INSTALLATION** .

Installing

Install in reverse order of removal.

TELEMATICS SYSTEM, TROUBLESHOOTING USING TELEMATICS INDICATOR LAMP

The following allows technicians to perform an initial evaluation of Telematics system operation status for troubleshooting using the OnStar(R) telematics indicator lamp (and pre-recorded system messages where applicable).

NOTE: This serves only as an initial evaluation only and is not meant to supercede detailed OBD program procedures carried out with VAS 5051 Vehicle Diagnostic Testing and Information System in operating mode "Guided Fault Finding"

The telematic indicator lamp LED is located in the telematic control head. LED indications are red or green, lighting continuously, blinking slowly or quickly.

Telematic system status can be determined via the LED with the ignition switched on and referenced from **TELEMATICS LED INDICATION CHART** table:

TELEMATICS LED INDICATION CHART

LED indication	**System status:**
Off	No connection, no malfunction
Red - continuously	No connection, malfunction in telematics hardware
Green -continuously	After completion of self-test or when OBD program is performed
Red - blinking slowly	Establishing connection, malfunction in telematics hardware
Red - blinking quickly	Connection active, malfunction in telematics hardware
Green - blinking slowly	Establishing connection, no malfunction
Green - blinking quickly	Connection active, no malfunction

Indications, overview:

- LED is off when ignition is off.
- The green LED comes on after a self-check routine is performed (approx. 10- 15 seconds after ignition is switched on). Sending or receiving voice communication with the OnStar(R) call center is now possible. LED remains on even in areas without cellular coverage.
- The green LED slowly blinking indicates a communication request has taken place and the system is in the process of establishing a cellular connection.
- The red LED indicates a malfunction in the telematics hardware was determined during the self check.

NOTE: After pressing either the OnStar(R) or Emergency button, a recorded message announces: "connecting to OnStar," followed by progression tones. Normal connection time is 10 - 15 seconds. However, due to local cellular/GPS conditions, making a connection could take up to three minutes. Be patient.

Condition - telematics indicator lamp "green" plus:

- message "unable to contact OnStar(R) and disconnect,

- message "OnStar(R) request ended",
- nothing happens,
- or a cellular message

indicates system cellular reception is affected. Proceed as follows:

- Relocate vehicle to a more elevated or open area and repeat connection attempts. Depending on the local cellular/GPS traffic conditions, several connection attempts may be necessary (and are normal).
- Shortcomings in the vehicle's cellular/GPS antenna system also affects connectivity. Check all cellular/GPS antenna connections, and perform OBD program using VAS 5051 Vehicle Diagnostic Testing and Information System in mode "Guided Fault Finding". Check for DTCs related to antenna function.
- If you are still unable to connect, record the VIN and customer details and call OnStar(R) Customer Care at 1 -888-390-4050. Identify yourself to the advisor as an Volkswagen Technician. The advisor will verify the customer's OnStar(R) account is active. Further troubleshooting assistance may be given.

Condition - telematics indicator lamp "red"

indicates system hardware (vehicle portion) is affected. Proceed as follows:

- Perform OBD using VAS 5051 Vehicle Diagnostic Testing and Information System in mode "Guided Fault Finding". Check/perform:

- DTC memory (function 02)
- Output DTM (function 03)
- Read Measuring Value Block (function 08)

NOTE: In the event any of the OnStar(R) control buttons are either inadvertently or deliberately pressed for longer than 15 seconds, the OBD program assumes a button is sticking. The red status light will come on and a DTC loads in memory. Perform OBD program using VAS 5051 Vehicle Diagnostic Testing and Information System in mode "Guided Fault Finding". Check DTC memory for DTC 01526 "mechanical malfunction". Inform customers accordingly.

TRANSPORT MODE DEACTIVATING

The Telematic system is disabled (switched-off) when Transport Mode is activated. This is necessary when vehicles are transported over long distances or stored for longer periods of time.

Some Volkswagen vehicles are initially delivered to dealerships with the Telematics system in Transport Mode, and must be deactivated before delivery to the customer using OBD program (VAS 5051 Vehicle Diagnostic Testing and Information System in mode "Guided Fault Finding".)